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FIRE ENGINEERING

The Journal of the Fire Protection Profession Since 1877

Vol. 89, No. 1 JANUARY, 1936 Member A.B.C.—A.B.P.

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Two Firemen of Newcastle, Ind., Were Severely Injured in This Crash Which Occurred Less Than a Block from the Fire Station

A New Barton CENTRIFUGAL FIRE PUMP

The FIRST 600-Gallon Front-Mounted Fire Pump to Pass ALL Underwriters' Tests

NEVER before such wonderful performance—at such a surprisingly LOW PRICE! Note what this powerful new pump will do. . . .

From suction (standard ratings) the new U-60 will pump 600 gallons per minute—develop pressures up to 250 pounds. From city hydrants, it throws 750 to 900 GPM. Centrifugal Type!—the dirtiest water can be handled safely! Automatically Primed!

That's going some! But listen to another fact of equal importance. So highly efficient is this new Barton Fire Pump — so little power required to drive—that you can use it on current model standard trucks.

THE U-60, FRONT-MOUNTED ON A FORD V-8, PASSED EVERY UNDERWRITERS' TEST—easily, smoothly—no strain on motor. **No, Sir, when you select a U-60, it isn't necessary to buy a heavy, specially-built, expensive truck. THIS SAVING ALONE RUNS INTO BIG FIGURES.**

And economy of installation is a money-saver too. WITHOUT A SINGLE CHASSIS CHANGE, a U-60 can be Front-Mounted and made ready for service in a few hours—COSTING BUT A FEW DOLLARS.

THEN THERE'S THE BARTON GEAR-DRIVE, part of the Pump. With this drive, the truck motor operates at approximately ONE-HALF pump speed. You can turn a U-60 wide open for maximum performance, YET THE MOTOR LOAFS ALONG. **Thus, years are added to the life of your motor.**

Mr. CITY CHIEF, today you don't have to spend thousands upon thousands of dollars for large-capacity pumping apparatus. Instead select a U-60 —AND SAVE YOUR TAXPAYERS PLENTY—or buy two for the price of one! Today, smaller towns as well can have the VERY BEST, because the low-cost U-60 is well within their pocketbook range. Check Coupon below for Bulletin 75A.

ALSO NEW BARTON F-4 and F-5 Fire Pumps at still Lower Prices!

Another amazing development! — sensational! — taking the country by storm! Both F-4 and F-5 Centrifugal Direct-Drive Pumps have PASSED ALL UNDERWRITERS' TESTS—YET SELL AT LOWEST PRICES ON RECORD for 400 and 500-gallon capacities. The only standard Barton U-Type feature they lack is Gear-Drive. Astounding values! Check Coupon for Bulletin 95.

Records show that more than nine out of every ten accidents are side-swipes. Head-on accidents are the exception; sides-swipes the rule. A FRONT-MOUNTED BARTON FIRE PUMP IS OUT OF THE DANGER ZONE. With thousands of Barton Pumps in service, we know of only one ever damaged by collision. FRONT-MOUNTING = CONVENIENCE + ECONOMY + GREATER SAFETY.

AMERICAN STEAM PUMP CO. • BATTLE CREEK, MICH

Please send me Bulletins as checked:

- ☐ No. 75A (Barton U-60, 600-gallon Gear-Driven Fire Pump.)
- ☐ No. 75 (Barton U-Type 350, 400 and 500-gallon Gear-Driven Fire Pumps.)
- ☐ No. 95 (Barton F-4 and F-5 Direct-Driven Fire Pumps.)

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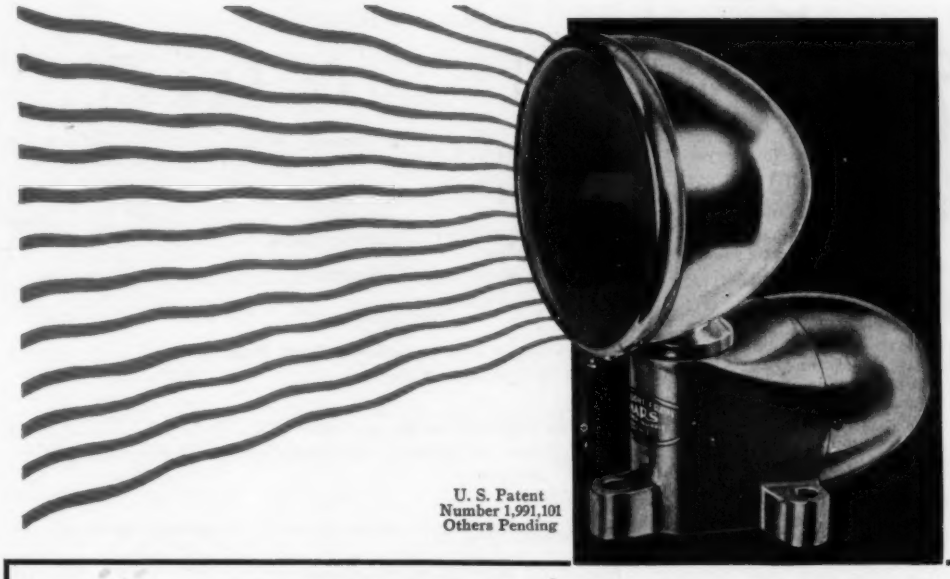
It Pays to be Safe!

WHEN YOU EQUIP YOUR APPARATUS WITH THE LIGHT FROM MARS YOU REDUCE THE HAZARDS OF RESPONDING TO NIGHT ALARMS TO A MINIMUM.



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There Isn't Another Light Like It!

THE LIGHT FROM MARS

Commands Instant Attention

IT CLEARS THE WAY!

Its powerful figure 8 beam of red light warns cross traffic approaching street intersections for several blocks ahead. Its rays sweep the street from curb to curb, lighting up the interior of cars moving with and approaching the apparatus.

The Light from Mars oscillates rapidly from side to side and at the same time the reflector inside the light moves up and down. These two motions create a figure 8 beam of red light—There isn't another light like it. Sturdy and fool proof, it will outlast the apparatus. Motor which operates light is completely housed in base of light.

NOW USED BY MORE THAN 200 FIRE DEPARTMENTS

Write to

MARS LIGHT CO., OAK PARK, ILL.

For Complete Information and Price

PROTECT THE LIVES OF YOUR MEN AND YOUR VALUABLE APPARATUS WITH THE LIGHT FROM MARS

A Consolidation of
FIRE AND WATER ENGINEERING
and THE FIRE ENGINEER
ROBERT H. LOCKWOOD
Associate Editor

FIRE ENGINEERING

FRED SHEPPERD
Editor

The Journal of the Fire Protection Profession Since 1877
N. N. WOLPERT
Assistant Editor

What's Ahead?

FROM many indications, it looks like 1936 is going to be one of the most interesting and important years in the history of this country. For one thing, conditions are obviously not only getting better but show good promise of steady improvement, all of which means greater opportunity for everybody who has any vision.

● In the fire field, the volume of fire equipment buying is a dependable barometer. Motor apparatus sales last year were 50% ahead of 1934 and more than 100% ahead of 1933. Judging from contemplated purchases by fire departments throughout the country, this year will unquestionably exceed 1935 by a wide margin; in fact, a well-known equipment maker, who just returned from a trip through eighteen states, told us the air is full of fire equipment business, with practically every fire chief he called on expecting to get a lot of new stuff this year.

● As for ourselves, we have gotten an unusually large number of new subscribers and several new advertisers during the past few weeks, which, too, is a good indication.

● Thus, unless anything unforeseen happens, 1936 ought to be an inspiring year.

The Publishers

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WHEN LIVES AND PROPERTY ARE AT STAKE LEADING CITIES

Choose Firestone

IT IS not surprising that Firestone Tires are the choice of leading Fire Departments everywhere. For Firestone Tires are built different—they have three patented construction features not used in any other tire.

The body is built with Gum-Dipped High Stretch cords. Gum-Dipping, the patented Firestone process, soaks the cords in pure liquid rubber, insulating and coating every strand in every cord. This is why Firestone Tires run cooler and are stronger.

The Tread is made of a new and tougher rubber compound. This, together with the scientific non-skid design, gives greater traction and longer non-skid mileage. Firestone locks this wider, heavier and more rugged tread securely to the Gum-Dipped cord body of the tire by building two extra layers of Gum-Dipped cords (patented) under the tread.

These exclusive construction features are the reasons why Firestone Tires will give you greatest safety and dependability. Be sure to specify Firestone Tires when ordering new equipment.

Listen to the Voice of Firestone — featuring Richard Crooks or Nelson Eddy, with Margaret Speaks. Monday evenings over Nationwide N.B.C. — WEAF Network

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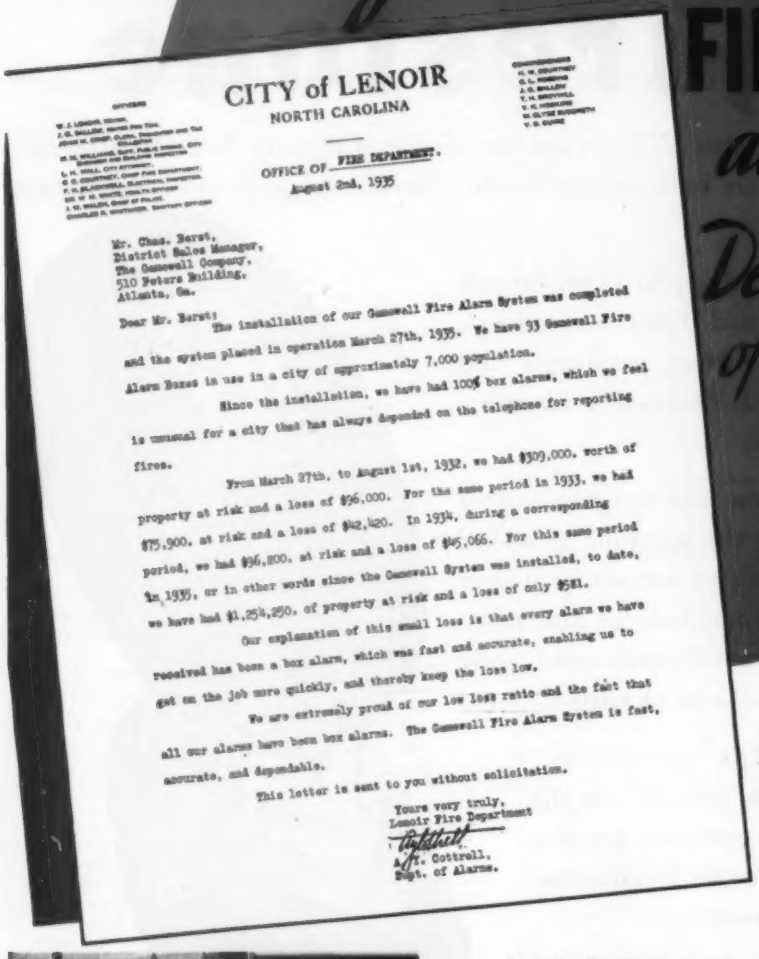
Startling Reduction in FIRE LOSSES at Lenoir, N.C. Demonstrates Value of GAMEWELL Municipal FIRE ALARM system



CITY of LENOIR
NORTH CAROLINA

OFFICE OF FIRE DEPARTMENT
August 2nd, 1935

Mr. Chas. Herst,
District Sales Manager,
The Gamewell Company,
510 Peters Building,
Atlanta, Ga.

Dear Mr. Herst:

The installation of our Gamewell Fire Alarm System was completed and the system placed in operation March 27th, 1935. We have 93 Gamewell Fire Alarm Boxes in use in a city of approximately 7,000 population.

Since the installation, we have had 100% box alarms, which we feel is unusual for a city that has always depended on the telephone for reporting fires.

From March 27th, to August 1st, 1932, we had $309,000. worth of property at risk and a loss of $96,000. For the same period in 1933, we had $75,900. at risk and a loss of $42,420. In 1934, during a corresponding period, we had $96,800. at risk and a loss of $5,066. For this same period in 1935, or in other words since the Gamewell System was installed, to date, we have had $1,254,250. of property at risk and a loss of only $581.

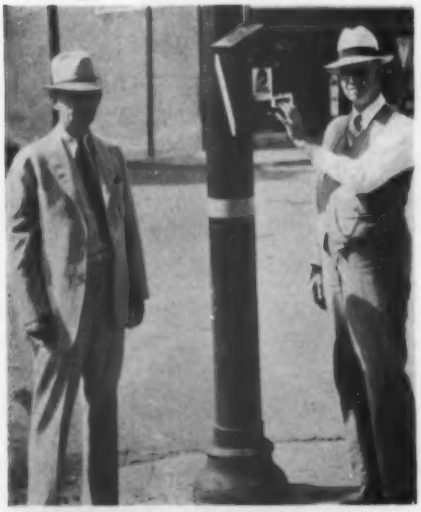
Our explanation of this small loss is that every alarm we have received has been a box alarm, which was fast and accurate, enabling us to get on the job more quickly, and thereby keep the loss low.

We are extremely proud of our low loss ratio and the fact that all our alarms have been box alarms. The Gamewell Fire Alarm System is fast, accurate, and dependable.

This letter is sent to you without solicitation.

Yours very truly,
Lenoir Fire Department
A. T. Cottrell,
Supt. of Alarms.

100% Box Alarms Cut 4-Months Fire Loss to $581, Compared With Previous Average Fire Loss of $61,162, When Telephones Were Relied Upon Entirely » » » »



TWO LENOIR, N. C., OFFICIALS transmitting an alarm over their new Gamewell Fire Alarm System which has reduced the city's fire losses tremendously.—W. J. Lenoir, Mayor (right), and G. C. Courtney, Fire Chief (left).

Lenoir, N. C., has just provided us with one of the most striking examples of the value of a Gamewell municipal fire alarm system that we have ever seen. During a 4-months period they received 100% box alarms which reduced their fire losses to $581 against an average 4-months fire loss of $61,162 for the three years prior to the installation of the new system when the city relied entirely on telephones for the transmission of fire alarms.

Besides showing the value of a modern municipal fire alarm system these figures establish the soundness of adequate fire alarm box distribution. In this city of approximately 7,000 they have 93 latest type Gamewell fire alarm boxes in service, thus making it possible for citizens to find a box quickly in any part of the city.

In the face of the convincing facts reproduced above, every responsible fire department or other municipal official should take steps to equip his city or town with a modern fire alarm system having an adequate number of fire alarm boxes. Write for a copy of our booklet FE700 telling how to plan a modern fire alarm system for your city.

THE GAMEWELL COMPANY

"A Box A Block"

NEWTON, MASSACHUSETTS

FIRE ENGINEERING

The Journal of the Fire Protection Profession

Volume 89 JANUARY, 1936 No. 1

With the Editor

The Closed Truck Proves Itself

The value of the closed body type of fire truck was demonstrated very conclusively at Charlotte, N. C., on October 7, when a new truck of this type, recently added to the Charlotte department, collided with a taxicab, which tried to cut across the path of the truck. The taxicab was demolished and its driver critically injured. The men riding in the fire truck, however, escaped harm with the exception of the Captain who who was riding in the eab and who receive a slight sprain of the shoulder, not enough, however, to put him on the sick list.

When Chief Hendrix Palmer specified the first closed-body truck for his department, he had in mind the protection of the men in just such emergencies as that described above. That this purpose was accomplished cannot be denied.

Protection of the men against the elements is a secondary, but equally important, advantage. Contrary to popular belief, the day of "iron men" in the fire service has not passed—for it never existed. Men who, through bravado or recklessness, exposed themselves unnecessarily to severe weather, paid for their foolhardiness sooner or later. Records of Fire Department medical officers show this in a convincing manner.

Street railway companies and truck fleet operators have learned the advantages of enclosing the drivers in weather-proof compartments, but Fire Departments still seem to cling to the old belief that fire fighters are supermen, immune to winter ailments brought on by exposure.

This fantastic belief must eventually end. There is no more justification for cities demanding that their public servants submit to unnecessary risk of health than there would be for street railway companies to require motormen to work on open vestibules.

There has been a great deal of interest aroused in recent years as the result of increasing the human life span, but until a rational program is followed in safeguarding firemen against exposure illnesses, the fire service can be expected to show no material improvement in this respect.

Protecting its firemen against accident and illness is just as much the duty of a municipality as is the protection of the public against property loss and injury incidental to fire. Hence adoption of a type of apparatus which safeguards men against accident and illness is surely justified.

Fred Sheppard

Salvage as Taught by New York Fire Patrol

School of Operations Established by the Organization for Members at Which All Features of Salvage Are Taught

By WILLIAM JEROME DALY

THE NEW YORK Fire Patrol School of Salvage Operations, now in its second year, is attracting the favorable attention of fire insurance underwriters as well as municipal fire officials throughout the country. It has been stated by those who have spent a lifetime in this work that the New York Patrol has the most complete and extensive course of training in that branch of fire protection.

The germ of the idea of a salvage school was incubated in the fertile mind of the enthusiastic Capt. William S. Cashman, of Fire Patrol No. 6, in the Bronx. He has advocated it for years, but it was Superintendent Thomas C. Shannon, of the New York Fire Patrol, who put the innovation into effect and gave it his wholehearted support. He told Capt. Cashman to go ahead. Without expence to the New York Board of Fire Underwriters, which is the administrative authority over the salvage corps, Capt. Cashman turned the top floor of the station of Fire Patrol No. 6 into a laboratory for the salvaging of property from fire and water.

Evolutions Cover Every Phase of Salvage

The evolutions taught and practised in the school are:

1. Demonstrate the inside and outside of covers.
2. Open covers on length.
3. Open covers on width.
4. Folding covers and care of covers in quarters and at fires.
5. Bagging covers on floors, door openings, elevators, etc.
6. Facing, stripping and locking covers and rolling ends.
7. Build runway with covers to remove water with squeeges.
8. Bailing water with wooden scoops from covers bagged on floors and shelves.
9. Cover furniture, stock, shelves, machinery, pipe risers and skidding stock on floors.
10. Covering with use of cover poles.
11. Building chutes, covering skylights and roofs.
12. Forcing doors, elevators, iron shutters and windows and cutting holes in floors.
13. Use of piercing poles, fire hooks, claw tools, and use and care of presto-lights.
14. Sprinklers; sypho-chemical system, dry-pipe system, including air compressors, automatic exhausters, wet-pipe systems, shutting off and draining and replacing sprinkler heads.
15. Supervisory and local alarms on wet and dry-pipe systems.
16. Sprinkler repair, equipment and open-head sprinklers.
17. Demonstration with sprinkler forceps or tongs and shutting off fused sprinkler heads.
18. Interior manual and automatic alarm systems (Aero Alarm).
19. Hose jacket drill, operation of hose lines from hydrants, connections to siamese for sprinklers, standpipes and use of increasers and reducers.
20. Use, recharge and maintenance of 2½ and 5-gal. extinguishers.
21. Ventilation.
22. First aid; resuscitation; use of jumping cover as a stretcher.
23. Ladder drill (beam and scaling), and jumping cover.
24. Fire telegraph signals; instruction in signal systems; sending and receiving signals from alarm boxes (single and double action).
25. Fire reports (officers).
26. Questions and answers on salvage and Rules and Regulations.

Spreading Covers on Stock and Shelving in New York Fire Patrol School of Salvage

Attendance Compulsory, but Not on Own Time

Attendance at the school is compulsory, but the fire patrolmen do not suffer any loss of their own time. Six patrolmen attend daily for one week. They come from three of the nine stations in the city. Capt. Cashman is the instructor. The school has every conceivable prop, tool, appliance, apparatus, implement and physical condition that a salvage man is apt to meet. The only things absent are smoke, heat and flames. There is a complete stock of packing cases and crates of various sizes; household and office furniture, shelving, fixtures, etc. A standard New York fire alarm telegraph street signal box; an engine house bell set with Morse key, etc.; an A.D.T. supervisory system, typical of the installations in commercial buildings; an Aero-automatic alarm system; a water tight room for sprinkler demonstration; a standard fire hydrant and a complete lay-out of tools, appliances, supplies, etc., used in salvage work.

In addition, there are hose lines and couplings, a Conran check valve and pressure reducing valve, as well as a test plant to demonstrate the actual functioning of a fusing sprinkler head; automatic alarm transmission and standpipe supply.

Each Fire Patrol truck in New York carries 35 covers. There are from 300 to 400 covers in reserve on the racks of each patrol station. Recently each station of the salvage corps was equipped with two new trucks, or wagons, as they are still

referred to by fire fighters of the horse drawn era.

Captain Cashman Holder of Life Saving Medal

Capt. Cashman has been in the Patrol service thirty-three years. He is the son of the late Deputy Chief John J. Cashman, of the New York Fire Department. His brother John J. Cashman, Jr., is an Assistant Fire Marshal; another brother is Capt. Francis J. Cashman, Engine Co. 71, and a nephew, Fireman John J. Cashman III, of Truck 27, is the son of the late Thomas Cashman, who was Chief of the Ridgefield Park, N. J., Fire Department for several years. Capt. Cashman, of the Fire Patrol, is the only holder of a Fire Patrol Life Saving Medal who is still in service. He won it in 1917 for the rescue of Fireman Harry J. Murphy, of Engine Co. 26, from the cellar of No. 347 West 38th Street. Murphy was unconscious on the floor and might have succumbed, had not the then Sergeant Cashman, of Patrol No. 3, with herculean strength and courage, carried him up to the sidewalk. Fireman Murphy later attended the presentation of the medal to his rescuer. Fourteen such medals have been awarded by the Fire Underwriters to members of the Fire Patrol service in New York.

How the Patrol Started

In old New York, in the days of the Volunteer Fire Department, when the equipment was primitive and when there was less dispatch in reaching the scene of a fire than exists today, the care and the salvaging of property was a responsibility shouldered by the "Vamps." Rivalry between volunteer fire companies was very keen and competition for distinction in fighting a fire, coupled with the excitement of the blaze, made it impossible for any but a special force to take necessary precautions for the protection of property from water and fire. This condition was always a keen source of concern to the insurance companies, who arranged, in 1803, with various members of the fire companies to make the preservation of materials, fixtures, furniture, etc., their particular responsibility. They called it the "fire-police" service.

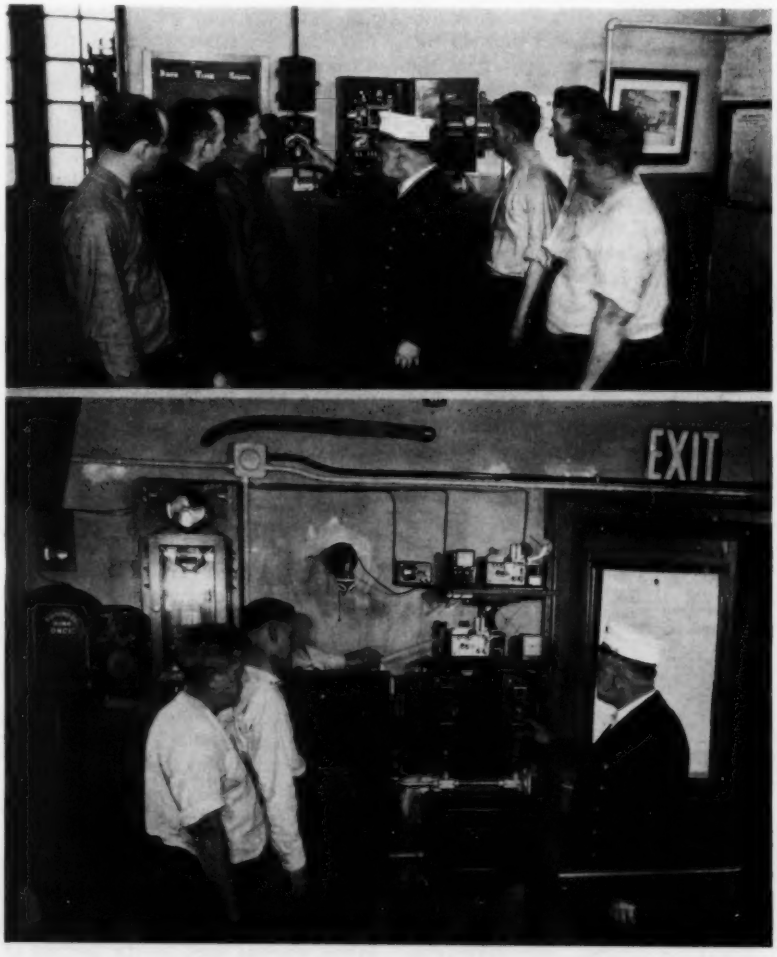
As New York grew, its population kept increasing and the number of fires annually kept pace, until it was finally determined by the insurance companies to institute a special service to safeguard them from the losses due to water damage. Therefore a corps was organized to enter burning buildings to protect the contents.

Mutual Bag Company First Fire Patrol

The duties of this corps were so prescribed as not to bring them into conflict with the regular Fire Department, but rather to facilitate the work of the city's firemen. The first Fire Patrol was known as the Mutual Bag Company. It was composed of sixty-five members. Philip Ten Eyck was President; Edward Laight, Vice-President; Aaron Levy, Secretary. The members of that pioneer organization each carried two bags made of Russian sheeting, or some equally serviceable cloth, three feet long and two feet wide, marked with the owner's name and the initials of the organization. This outfit was inspected regularly every three months by a committee especially appointed for that purpose. Any deficiency observed in the equipment was the subject of disciplinary action. The duties of the members were prescribed in the rules and regulations of the organization as follows:

"Upon an alarm of fire every member with his hat and bags shall repair to the house or store most in danger, belonging to any member of the company, and endeavor to the utmost of his power to save their effects, by carefully conveying them to some convenient and proper place and to prevent the embezzlement of the same; and in case no such house or store be in danger, then each member shall give his assistance where he deems most proper."

This service was voluntary and it was then, as it is now, wholly distinct from the regular Fire Department. The Mutual Bag Company transacted its business at quarterly meetings, which the members were obliged to attend. Absence from two



Upper—Captain William S. Cashman, Fire Patrol 6, Instructor, Demonstrating the Operation of Aero Fire Alarm System at the Fire Patrol School of Salvage. Lower—Fire Alarm Telegraph and the A.D.T. Section of the School. Captain Cashman Making a Test

Left—Demonstration of the Functions of a Dry Valve Sprinkler System. Right—Fire Patrolmen Are Taught and Must Practice All the Fire Department Telegraph Code Signals

consecutive meetings was punishable by expulsion. Although the implements employed in those days would seem crude in these times of approved appliances, yet they proved adequate and doubtless sugested the devices used today for similar purposes.

In that old organization, the members resided in the lower section of the city, in such historic thoroughfares as William, Wall, Cedar, Broad, Stone, Greenwich, Pearl and Whitehall Streets. The roster of the original salvage company contained the names of some of New York's pioneer families such as William Bache, John K. Beekman, Alexander Bleecker, Abraham Brinckerjoff, Jr., Henry Cruger, Jr., William Cutting, Nicholas DePuyster, Charles Laight, Robert Morris, Washington Morton, Cornelius Roosevelt, Harmon G. Rutgers, P. G. Stuyvesant, John Suydam, Henry Swartwout, Philip Ten Eyck and William L. Vandervoort.

The bag carriers continued, in their humble way, and nothing more is recorded about them until 1835, when the Association of Fire Insurance Companies employed four men at a salary of $250 a year each to "attend all fires and to protect the interests of the Fire Underwiters by preserving property exposed to fire and damage thereto by water." This was the beginning of the fire patrol.

Fire-Police Force for Mercantile Section

In November, 1839, the association employed forty men as a Fire-Police Force for duty in the fifth fire district (mercantile section) as a night patrol, "to attend all fires in the district and to use their best endeavors in extinguishing fires and save property from destruction."

The expense for the first year amounted to $17,927. Of this $16,724 was for salaries; sixty-three dollars for bags; forty-five dollars for fire caps; fifty-three dollars for a patrol wagon; twenty-three dollars for whistles; three dollars for rattles and $1,016 for sundry items.

The men selected for this service were mostly former members of the Volunteer Fire Department. They were considered experienced in fire fighting. The only uniform required of the Fire-Police Force was a red fire hat. It was from that raiment that the men were referred to by the regular firemen as "red heads." Oiled covers for the protection of merchandise from water were first introduced in 1845, six having been purchased that year. In 1851 ten roof covers were bought, to cover skylights and windows. The pay of the Captains of the Fire-Police Force in 1852 was $500 a year, for alternate nights of service. E. H. Morse, the first Captain, was appointed in 1840 and he was succeeded in 1845 by Captains Samuel Smith and John Primrose.

Hose Cart Stored on Top Floor of Building

In 1853 the first code of rules was printed and placed in the hands of every member of the force. The organization was confined to one company located in Dutch Street near Fulton Street. Later it was moved to No. 41 Murray Street near the present City Hall. The company was divided into two sections on duty alternate nights. The only apparatus of the company in those days consisted of a small hand drawn cart. It was stored on the top floor of a building during the day and at seven o'clock every evening it was lowered to the street and placed in service until five o'clock the following morning, when it was again hoisted to its top floor storage.

The Fire Patrolmen were on duty only at night and their wagon was nick-named the "Pie Wagon," because it was similar in construction to the wagons used by the piemen of the city. In fact there is nothing on record to disprove the story advanced by some that it was actually a second-hand pie wagon that the fire patrolmen used to respond to fires. The "pie wagon" carried six covers, four brooms and six water buckets. The wagon started out in the evening with its fire patrolmen. They patrolled the streets east of Broadway and south of Chambers Street. Upon the discovery of a fire, one of the patrolmen would spring his rattle to call his comrades to duty.

Second Patrol Company Organized

It was not until 1855 that wagon No. 2 came into existence. It was located in the Marion Street bell-tower station and later was moved to No. 173 Elm (now Lafayette) Street, in February, 1873, and subsequently to No. 31 Great Jones Street on April 29, 1907. Its present quarters are at No. 84 West Third Street, in Greenwich Village. The organization of the Second Patrol Company caused the area of patroling to be extended to Grand Street. In 1858 a day force of fire patrolmen came into existence. Two men were appointed at each patrol station. A steam pumping engine for drawing water out of flooded cellars was first introduced in 1864, previous to which time metal hand pumps had been used.

The New York Fire Patrol in the year 1934 responded to 34,322 alarms and spread 32,436 covers. The Patrolmen watched and protected premises after fires for 66,825 cumulative hours. The patrol trucks traveled a total of 83,384 miles. The net expense last year for maintenance and supplies of the Fire Patrol organization was $564,201. Its members salvaged many hundreds of thousands of dollars worth of property from fire and water losses. Some of the patrolmen rescued men, women and children at the risk of losing their own lives.

West Virginia Chiefs Meet at Weston

A plea for financial aid to Fire Departments was made by Golden Adkins, Safety Director, Huntington, W. Va., at a special meeting of the West Virginia Fire Chiefs' Association held at Weston.

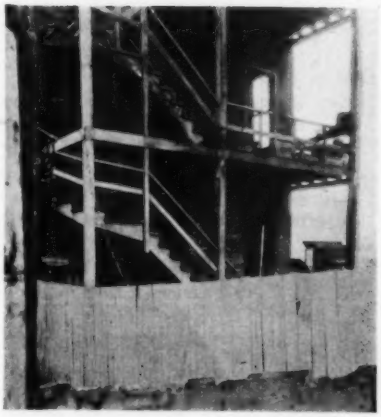
A motion was passed that a two per cent tax which is now levied on foreign fire insurance companies, be allocated to the city Fire Departments instead of the general state fund.

Plans for regional fire schools were discussed by R. B. Criswell, Engineer, Ohio Fire Inspection Bureau; The municipalities of Huntington, Elkins, Charleston and Weston asked for the schools. A fire school is to be held at Morgantown the last week in July.

Chief Grey Marsh and the Weston volunteer Fire Department were complimented on the manner in which they fought a fire at the state hospital.

Arsonists Convicted in Chicago

In Spite of Evidence and Proof, Jury Gives Criminals Life Sentences, Although Ten Persons Perished in the Fire



Looking at Rear of Building from Alley
Note burned and charred condition of porches.

THE FOLLOWING IS from the official report to Chief Fire Marshal Michael J. Corrigan, of the Chicago Fire Department by Jerry Falvey, Chief of the 25th Battalion, of an incendiary fire which occurred in that city on September 29, 1935. This fire resulted in the death of ten persons and the serious injury of others. Many rescues were made by the members of the Fire Department, and the promptness and skill of the men under the direction of Chief Falvey were responsible for the saving of many lives that would otherwise have been sacrificed to the greed of the arsonists.

Chief Falvey, in his report to Chief Corrigan, said:

"I respectfully report that on September 29th, 1935, I responded to Box 296 at Taylor and Desplaines Streets. Upon my arrival, I found a three-story brick and frame building at 558 West Taylor Street totally involved in fire and flames. The fire was on the first, second and third floors. Bystanders informed me that many persons were still in the building. I ordered the lines to cool the front of the building and as soon as possible had Truck Company No. 5 raise 36, 30 and 26 and 20 foot ladders to the front of the building. Members of Truck Company No. 5 proceeded up the ladders, while we kept a hose stream on them and removed many persons, some dead, some injured and some uninjured.

"Chief Pierce, who arrived almost simultaneously with me, directed our actions. I had every reason to believe that this fire was of incendiary nature, because of the rapidity with which it spread.

Principals in Crime Arrested

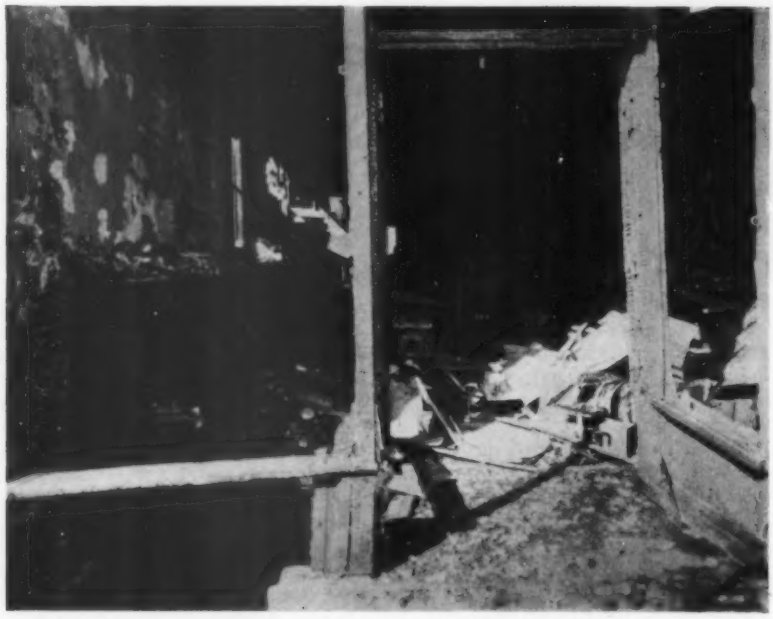
"After all persons had been removed from the building and fire was subdued, a citizen informed me that the owner of the grocery store, one Frank Vitale, was in hiding in a neighbor's home on Forquer Street. I borrowed Father Gorman's car and, together with Officer Walsh, of the 22d Precinct, went over and took him into custody and questioned him thoroughly. He told me he had closed the store at 2 p.m. and went to visit his sister-in-law at West Huron Street, in a Checker Cab. After further questioning and after bringing in his sister-in-law, his statements were at variance. I ordered him held and notified Fire Attorney Sheehan and for seventy-two hours we continued to bring in people in the district and eventually obtained confessions involving Frank Vitale, his nephew, Joe Vitale, a saloon-keeper and one Joe Di Chiari.

"Di Chiari confessed to me and Captain Stege, Marshal Kearney, of the State's Attorney's office, and Captain Norton, of the 22d Precinct, that he had been hired some two weeks previous by Frank Vitale to burn the store for the sum of $100. Vitale had informed him that he carried $2,000 insurance on the contents of the store and $1,000 insurance on his household contents. However, in making this arrangement, Sam Iacabello, of 721 DeKoven Street, who listened in on this conversation warned him that there were women and children living and sleeping above the store and to be careful. He replied that he knew how to make a fire and no lives would be lost.

Purchase of Gasoline Checked

"In confessing, he stated that he bought fifteen gallons of gasoline in three five-gallon cans, in the 1200 block on North Wells Street. We checked this and brought him to the Wells Garage, and the owner, a John Burke, identified him as the pur-

Left—West Side of Building, 558 West Taylor Street, Chicago, in which Incendiary Fire Occurred. Center—Front View. Right—West Side of Building
Note brick construction in front and frame in rear. Rescues were made from third floor center and west windows and from middle window on second floor, shown in center illustration. Wires in front of building, which made raising of ladders difficult, are shown.



Interior of Store Viewed from the Front Door

Note stairway burned away. All rescues had to be made down ladders.

chaser of the gasoline. A week previous to the fire, he removed this gasoline to his uncle's home, one Dominick DeRosa, at 1326 Sedgewick Street, hiding it in the basement until such a time as he could remove it to 558 West Taylor Street.

"On Thursday preceding the fire, he borrowed the Plymouth car of Joe Vitale (a nephew of Frank), transported the gasoline to the Taylor Street address and delivered it to Frank at the rear door.

"On Sunday, the 29th, Frank took his two children, Anthony and Rose Vitale to their aunt's home on DeKoven Street, so that the children would not be involved in the fire or injured. Joseph Di Chiari, in his confession, states that he sprinkled the gasoline all over the contents of the grocery store and the living quarters and then streamed a tributary of gasoline out into the yard, first having removed the empty cans up the alley approximately 150 feet. He then lighted up pieces of newspaper and applied them to this tributary and left the back door open. He ran across the prairie to Forquer Street, met Joe Vitale and Joe drove him to Chicago Avenue and Clark Street, after first passing the scene of the fire to see that a good job—in his words —had been done.

"They were all sworn to secrecy, but after considerable grilling and questioning by the writer, Captain Norton, Captain Stege and Marshal Kearney, and police officers of the 22d Precinct, they broke down and made signed confessions. Ten persons were killed in the fire.

"The building was owned by Anthony Gentile, a Police Sergeant attached to the Albany Park Station."

The Trials of the Arsonists

Frank Vitale and Joseph Di Chiari were tried for the crime on November 5, 1935, before Judge Joseph B. David, of the Criminal Court of Chicago. The two had begged for the chance of pleading guilty, so that they could escape the death penalty, which seemed assured if they went to trial. But the Judge had replied:

"Never in all my experience have I imposed the death penalty when a defendant has thrown himself upon the mercy of the court. But in this case I feel it would be my duty."

On this reply the defendants decided to withdraw the plea, and their attorney asked that the trial proceed. At its conclusion the jury surprisingly brought in a verdict of imprisonment for 99 years. Joseph Vitale, the go-between in the arson transaction, threw himself upon the mercy of the court, during the trial, and was given a sentence of 199 years by the judge. Thus the "torch" and the instigator of the crime received a lighter sentence than the go-between, and the former have the possibility of release from prison after serving thirty-three years, when they will be eligible to parole. Di Chiari, now 31, will be 64, and Frank Vitale, who is 44, will be 77. Joseph Vitale would have to be 100 to be paroled, as he is now 34, and his parole time would be 66 years.

Chief Falvey Commended by Underwriters

Battalion Chief Jerry Falvey received on November 11 a letter from

Rear View, Looking Into First Floor Store from Back Door

the Chicago Board of Underwriters commending him for his part and that of his department in the apprehension and conviction of the arsonists, as follows:

"It has been with a great deal of interest and more especially admiration, that I have read a detailed report of the fire which occurred at 558 West Taylor Street on September 29, 1935.

"It is only proper that the Chicago Board of Underwriters should recognize the meritorious service which was not only performed there in preventing the spread of fire but more particularly that you, in addition to your other duties on that occasion, should have the foresight and the courage to depart from your usual line of apprehending and convicting those who have since been indicted for arson on that occasion.

"In addition to my personal appreciation I extend to you the compliments of the Chicago Board.

"Very truly yours,
J. GLIDDEN.
"Mgr., Chicago Board of Underwriters."

Spark Causes $200,000 Paint Factory Fire

Valuable machinery and a practically new fireproof three-story building were destroyed at the Cook Paint and Varnish Company in North Kansas City. Firemen held the fire to one building but the loss will exceed $200,000.

The first two floors of the brick and reinforced concrete building were used in the manufacture of lacquers, while the third housed research laboratories and paint cost departments. The turbo-mixers on the first floor are used in mixing gun cotton and other acids and chemicals into a nitro-cellulose, used with pigments, in making the various lacquers.

At the time of the explosion the first turbo-mixer in the southwest corner of the first building was being charged through the tube leading from the second floor. Apparently the cart being used in the process did not ground itself on the concrete floor and a static spark, caused by the splashing of the thirty-five gallons of chemicals it contained, jumped to the turbo-mixer which was grounded. The spark caused the vapor and solution to explode, hurling a sheet of flame over the entire second floor. Fifty employees in the building were immediately in grave danger, as other chemical vats exploded with cannon like roars. Twenty-five employees on the third floor escaped through a fireproof door, crossed a narrow catwalk atop a huge tank filled with lacquer and then down to the ground by ladders. Those of the first floor escaped easily. Three employees on the second floor were trapped from the escape passages at the rear of the building by a blinging sheet of flame. The retreat to the front windows was hasty. There they hung until another explosion forced them to drop twenty-five feet to the ground. Strangely, no one was killed one employee was dangerously burned around the head and shoulders, while the three who fell were only bruised and shaken.

The explosion occurred at about 3:46 p.m. but due to the round about way the fire alarm had to be carried to the North Kansas City Fire Department, the alarm was not received there until 3:50. Upon their arrival, firemen found the building billowing smoke from all sides. Under the direct supervision of Chief R. E. Bradley and Assistant Chief O. D. Loar of the North Kansas City Department the blaze was fought until one o'clock the next morning before the drums of chemicals ceased to explode and the fire was whipped out. At one time, flaming chemicals poured from the doors and flowed in the street until they were covered by foam streams. Two car loads of gun cotton stored near the blaze were safely moved to distant parts.

Burning Lacquer as it Flowed Onto the Street

Kansas City, Mo., Assists

Assisted by a ladder truck company, three engine companies, and a turret truck company from the Kansas City, Mo., department under Chief M. M. Mahoney, and two hundred employees of the Cook Company, Chief Bradley succeeded in holding the blaze to the building and preventing the huge tanks of lacquer surrounding the fire from exploding and wrecking the entire plant. The sprinkler system functioned perfectly with every head opening but it did not do much good, because of the lack of water. There was not enough water to keep the building cool and the concrete and brick in the building were ruined.

Two General Hospital ambulance crews set up an emergency hospital to handle the injured, especially as dangerous gases released by the explosions, drifted from the building. The Kansas City, Mo., Fire Department left the scene about 9 p.m. but the North Kansas City trucks remained until after five the next morning.

HAROLD T. WHITNEY

Long Beach Starts Fire Relic Museum

What may eventually develop into one of the historical show spots of the old West is seen in the recent expansion of the museum started a year ago by the Long Beach, Cal., Fire Fighters Association. So much enthusiasm has been shown by the firemen over their collection of old pictures, helmets, belts, out-dated equipment, rule books, annuals, ancient dance programs, badges, old uniforms, and other relics of the "good old days," in Long Beach that they decided to expand their collection to include the fire service of the entire world.

Moving ahead with the complete support and sanction of both Fire Chief Alien C. DuRee, and City Manager Randall M. Dorton, the smokies are preparing to mail out letters to every city of consequence in every civilized land, inviting them to submit gifts of ancient articles for the collection.

The plans call for the museum to be the repository for all gifts received, each article in the collection to be suitably inscribed with the history of the piece, its age, purpose and origin, and the name of the donor.

A committee of firemen is now investigating the problem of housing the exhibit and expect to work out suitable arrangements with City Manager Dorton in the near future.

Large pieces such as hand pumpers, steamers, etc., cannot be handled at present, because of lack of housing space, but the firemen hope eventually to acquire a sizeable group of these old machines.

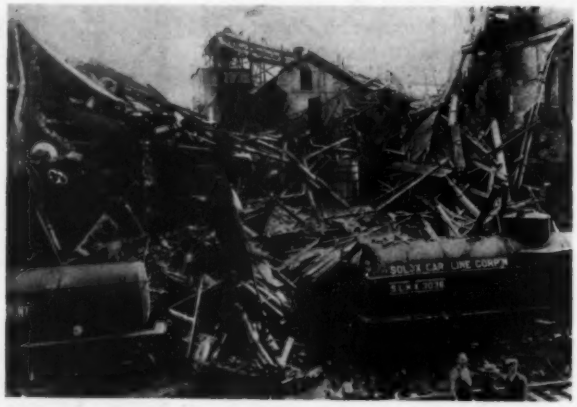
The Long Beach firemen are hoping that their comrades of the fire service throughout the world will join them in establishing what they believe will be the first world wide fire service museum.

MAURICE M. CLEMENT.

Gases, Chemicals and Hazardous Materials

Part V

In this fifth installment is continued the discussion of chemicals and hazardous materials more commonly encountered in fire-fighting. Methods of shipping and handling and their action under exposure to fire are given for most of the materials.



Two Lives Were Claimed by This Explosion

An explosion in the acid house of the DuPont Viscoloid Company, Kearny, N. J., wrecked the small building, killed two persons, and injured a large number of others.

Aluminum Dust: This metallic dust is usually found in barrels or boxes, in which it is shipped. Like carbonaceous dust (wood, charcoal, coal, grain, etc.), aluminum dust when mixed with air forms an explosive mixture.

Aluminum dust burns quietly when in a pile, but if this pile is disturbed in such a manner as to raise a cloud of the dust in the air, the burning takes place with explosive violence. If the dust cloud already formed has a density within the explosive limits to be ignited, a violent explosion results. Aluminum powder is ordinarily stable under friction, but gentle rubbing, after the addition of potassium chlorate, causes it to explode violently. The following precautions should be observed to prevent explosion or ignition of aluminum dust in storage; keep the dust dry; keep rooms at even temperature—to prevent condensation of moisture and prevent conditions favorable to the generation of large static charges of electricity; if the dust begins to darken (oxidize), immediately remove it from the room where other dust may be present, and thoroughly ventilate the place to remove any hydrogen gas that may have been generated; use no naked lights; keep the air as free as possible from dust.

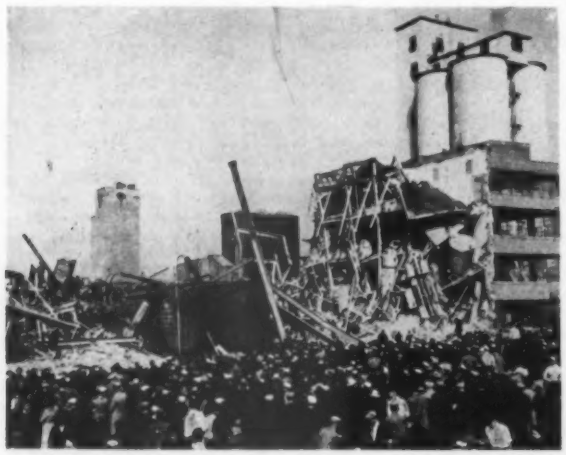
In case of fire, do not use water; it may cause an explosion.

If the dust starts to burn from spontaneous heating or other causes, and water is thrown on it, burning hydrogen is liberated immediately, whereupon the dust is thrown into the air, and a terrific explosion may result. In one case on record a violent explosion resulted from pouring molten aluminum through a screen into a bucket of water.

Spontaneous heating often takes place in piles of dust exposed to air, and evidently such heating is accelerated by an excess of oil. The remedies of such heating are self-evident; first to prevent the collection of dust, and, second, to regulate the amount of oil.

Attempts have been made to use carbon tetrachloride as an extinguisher for putting out fires in aluminum dust, but this was found to be as bad as water. If a fire in a gob of aluminum dust be isolated, a crust of aluminum oxide forms over the surface and smothers the fire. This method of extinguishing a fire is evidently dangerous, for any accidents that raise the pile into a dust cloud would immediately cause an explosion.

In one of the factories handling aluminum dust, oil is poured onto the fire until the oil burns and the aluminum fire is smothered, whereupon carbon tetrachloride is used to extinguish the fire in the oil.



The Remains of a Blowout by Soybean Mash in Chicago

Eight persons were killed when a vat of several thousand gallons of boiling soybean mash blew up because of the high internal pressure. A fire which started after the explosion was quickly extinguished by the Fire Department. Workers are shown searching for the bodies of the blast victims.

In another factory, sand is poured carefully on the pile, the pile isolated and the fire smothered in this way. It appears that fine shale dust, such as is used in coal mines to prevent explosions, may be used to advantage, as the shale makes a denser cover that excludes the air more completely.

Barium Chlorate: This is a white, poisonous powder, soluble in water, and in the common acids. It is shipped in iron drums, wooden boxes, barrels or kegs. It is an oxygen carrier (oxidizing material) and is therefore dangerous in contact with acids and organic materials. It is used in fire works and signal lights for the green color it imparts to flame, and in the dyeing processes for its oxidizing properties. Its hazard classes with potassium chlorate. In storage it should be isolated from other materials.

Barium Nitrate: This is a lustrous white crystaline solid, poisonous, soluble in water. It is shipped in iron drums as well as in wooden boxes and barrels. It is used in fireworks and signal light manufacture. It is an oxygen carrier (oxidizing material) and dangerous with acids or organic materials. Contact with sulphuric acid may result in fire. Its hazard is the same as that of sodium nitrate. It should not be stored with combustible materials.

Barium Peroxide (or Dioxide): This, a grayish white powder, is poisonous, and it imparts green color to flame, as do all barium salts. This material is used in the preparation of hydrogen peroxide or oxygen, or in other ways to serve as an oxygen provider. It is also used in bleaching operations, and in certain types of fuses and colored fire. It is usually packed in wooden barrels or in tightly closed metal containers. As it is an oxidizing material it should be kept away from other combustible materials.

Bleaching Powder: (Calcium hypochloride, chlorinated lime, chloride of lime or "bleaching powder" as it is commonly called). Has been the cause of a number of explosions. Bleaching powder as commonly produced is a

(*Continued on page 26*)

PROMOTIONAL STUDY COURSE

Herein is presented a series of definitions, questions and answers, designed to aid fire department officers in preparing themselves for promotional examinations. In this department, which appears monthly, will be included questions typical of examinations held throughout the country.

Definitions

Asbestos: A fibrous mineral, somewhat resembling flax, and having great fire resisting properties.

Sleeper: A piece of timber used to support the joists (beams) of a floor.

Lintel: The head piece across the top of a door or window.

Yard: An open unoccupied space on same lot with a building between the rear building line and rear lot line.

Court: An open unoccupied space other than a yard.

Inner Court: A court not extending to the street or yard.

Outer Court: A court extending to the yard, or street.

Fire Resisting Roof Covering: Any roof covering of brick, tile slate, metal, asbestos shingles, slag, asphalt shingles, composition of asbestos and asphalt, or tar and gravel.

Questions

(To be answered in next issue)

1. As lieutenant in charge of your company at a fire, you are to order some of your men into a building filled with smoke. What instructions would you give them?
2. What is the proper way of breaking a glass window at a fire?
3. What special precaution should be observed in overhauling a basement of large dwelling after fire has occurred therein, the heating system of the building being of the hot air type?
4. Is it good practice to stretch charged lines of 2½-inch hose by way of ladders to the fourth floor, and above, of a building?
5. What kind of pumps are used on the following apparatus: (a) American-LaFrance; (b) Ahrens-Fox; (c) Seagrave?
6. What is meant by "positive displacement" pump?
7. What limits the discharge of a motor fire engine at higher pressures? Why does it not give the same discharge at, for instance, 200 pounds that it gives at 120 pounds?

False and True Questions

(Is each statement false or true? Answers in next issue)

8. T F—A recently emptied gasoline tank is more dangerous from an explosion standpoint than a full tank of gasoline.
9. T F—The range and effectiveness of fire streams are greatly reduced when they are subjected to air leakage into the pump.
10. T F—With engine pressure remaining constant, the nozzle pressure is decreased as the length of the line is increased.
11. T F—Heavy streams, such as from deck guns, should not be shifted from window to window at a fire, but instead, kept operating through a single window.
12. T F—The deluge set finds its chief application in fires where it is desirable to have a heavy stream working on a burning mass for a considerable time.
13. T F—The fourth floor is considered the highest floor to which streams from hose lines on the street can be effectively operated.
14. T F—Open elevator shafts are better for preventing the spread of fire than are enclosed ones leading direct to the roof or pent house.
16. T F—Floors in buildings are sometimes connected by other openings than stair or elevator shafts.
17. T F—Nature of contents of a building can often be determined by the signs on the door, show window, or front of building.
18. T F—Obstructed aisles, although troublesome to the occupants of a building, are no menace to the Fire Department in connection with the work of extinguishing fire.
19. T F—Belt conveyors are always found properly housed-in, and hence are of no concern to the Fire Department.
20. T F—In case of fire around door casings, it is good practice to remove the casing and see that the fire has not extended to space behind casing or frame.
21. T F—Whenever fire occurs near any false-work, the men should open up a section of the wall or partition and examine the concealed spaces to be certain that fire has not entered therein.
22. T F—By feeling over concealed spaces with the hand, the location of hidden fires may be ascertained when no outside indications exist.

Completion Statements

23. Brush fires burn.....with the wind and.....against the wind.
24. Soda and acid extinguishers should not be used on fires in live electrical apparatus because.....
25. When two lines of hose of equal length are laid and siamesed into a single nozzle (deluge set) the friction loss is.....per cent of what it would be for the same length (engine to nozzle) of single line with the same size nozzle and same flow.
26. A 50-foot section of 2½-inch hose weighs, on the average, between ..... and ..... pounds.

Answers to Questions in Previous Issue

1. When a company has been ordered to "back out" of a building, from the upper stories, the engineer should first be notified, and, after he has shut down, the line should be disconnected at the first coupling outside of the building, or relieved of water by engine relief gate; line should then be backed out with the nozzle last. Time can frequently be saved when backing out from the ground floor by not waiting until the line is relieved of pressure, but by backing out "charged."

2. Obey the last order received.

3. In replacing burst length of hose on the ground, and the line is taut, first have the water shut off at the engine or hydrant; procure **two** lengths of hose from the wagon and lay alongside of the **one** burst length; uncouple the burst length and replace with the **two** good lengths. The reason for using two lengths is the fact that the hose, when under pressure, stretched from several inches to several feet, depending upon the pressure and condition of the hose, and using **two** lengths to replace **one** burst length saves dragging the two ends together; thus saving time and labor.

4. No. Both are odorless.

5. Hazards incidental to a department store include: highly combustible stock, large open areas, direct communication from floor to floor by way of elevators, escalators or stairways; waste paper, and paper straw and excelsior used in packing. Oily material frequently becomes mixed with sweepings and causes spontaneous ignition. Repair shop wherein carpentry work, electrical work, painting, varnishing, etc., is carried has its usual hazards; furniture polishing and repairing, which involves the use of oil shellac, alcohol, varnishes, and sometimes paint. The accumulation of oily rags is a serious hazard; clothing repairing and altering together with cleaning and ironing are all hazards; upholstering is done in some of the larger stores, and in view of the inflammable nature of materials employed, it constitutes a real hazard; improperly constructed and maintained kitchen; power plant located in basement of store; improperly installed electrical equipment, such as incidental to window displays, holidays decorations, etc.

Auxiliary appliances which should be provided include a regulation sprinkler system with adequate water supply; in show windows where wet pipes are apt to freeze, such pipes should be operated on a dry system. Alarm or dry valves controlling all sprinklers should be provided, and the alarms should be connected where possible to a central station or Fire Department alarm system.

In such, hand protection should consist of soda and acid extinguishers and pails, and possibly small hose. In buildings of large area or considerable height, it is important to have large standpipes with 2½-inch outlets on each floor for use by the Fire Department. These should be located in stairwells where possible. Department stores, being in congested districts, occasionally need special protection against exposure fires. Such protection takes the form of fire shutters and wired glass. Where an adequate water supply is available, water screens or open sprinklers over the windows may be used to guard against exposure fires.

6. True; 7. True; 8. True; 9. False; 10. False; 11. False; 12. True, 13. True; 14. True; 15. True; 16. False; 17. False; 18. True; 19. False; 20. True; 21. True; 22. True; 23. False.

24. . . . fusible link melts (on sprinkler head). 25. . . . portable hydrant nipple. . . . 26. . . . automatic wet pipe system. . . . 27. . . . automatic dry pipe system. 28. . . . non-automatic dry pipe system.

Questions With Answers

Question: What are the chief characteristics of:
(a) Fireproof construction;
(b) Mill construction;
(c) Frame construction.

Answer: (a) Fireproof construction is construction in which all of the walls are built of brick, stone, concrete or terra cotta; all floors and roofs of terra cotta or reinforced concrete placed between steel or reinforced beams and girders; all the steel entering into the structural parts encased in fireproof material, including the wall columns; all stairs, elevators, public hallways, corridors or other shafts enclosed in fireproof partitions or enclosures; all doors of fireproof design; all stairways, landings, hallways and other surfaces of incombustible material; no woodwork or other combustible used in any partition, furring, ceiling or floors (the latter may be wood if laid on sleepers without air space) and all doors and sash trim and other interior finish of incombustible material; all windows (side walls and in courts) of wired glass in metal sash and frame. In factories the floors should be inclined and cement covered, with scuppers to carry off water.

Incidentally, a fireproof building does not exist, the name "fire-resisting" building being more nearly a reality as far as structures composed of non-combustible materials such as brick, steel, terra cotta, or concrete are concerned.

(b) Mill construction is building construction in which timber and plank is so disposed in heavy solid masses as to expose the least number of corners or ignitable projections to fire, to the end that when fire occurs it may be most readily reached by water from sprinklers or hose, and that the fire progress slowly. It consists in separating every floor from every other floor by automatic hatchway coverings, by encasing stairways either in brick or other incombustible partitions—so that a fire shall be retarded in passing from floor to floor to the utmost that is consistent with the use of wood or any material in construction that is not absolutely fireproof.

(c) Frame construction refers to the construction work in building; wherein the exterior walls or portions thereof are of wood; also buildings with wooden frame work veneered with brick, stone, terra cotta, or concrete; or covered with plaster, stucco or sheet metal.

(To be continued)

Chief Olsen Benefactor of Boys

Two hundred boys are quartered at Father Flanagan's Home, Boys Town, Neb., which is near Omaha. When Omaha celebrated its Fire Prevention Week, all patrols from schools in and about that city participated in a parade on Saturday morning. The boys wanted to join the parade in Omaha, ten miles away. Without means of transportation, the band appealed to Chief Olsen and he sent a department truck to bring, and return, the boys.

HOW EFFECTIVE IS CARBON DIOXIDE GAS IN EXTINGUISHING GAS AND OTHER FIRES?

Opinions and Experiences of a Number of Fire Chiefs Regarding the Use of Carbon Dioxide Fire Extinguishers

CARBON DIOXIDE GAS, or "carbon snow," or CO_2, all accepted names for the same article, is available for fire department use to extinguish fires. The gas is stored under high pressure in cylinders and these cylinders may be carried on fire apparatus as portable units, or the larger size tanks may be mounted as a permanent fixture.

To obtain authoritative information on the use of carbon dioxide gas for extinguishing fires, a representative number of Chiefs were asked their opinion and experiences regarding the use of this gas in extinguishing fires in electrical equipment, lacquer and finishing plants, inflammable liquids, dry cleaning liquids, printing establishments, running gasoline fires, garages, boats, airplanes, and manhole fires.

The following information was received:

James E. Granger, Chief, Cleveland, Ohio: We have been successful in using carbon dioxide for extinguishing incipient fires of the types outlined.

I witnessed a demonstration of the efficiency of carbon dioxide in manholes, conducted by the Cleveland Electric Illuminating Company. This corporation has a trailer containing sixteen 50-pound cylinders of carbon dioxide, operated in series. The trailer is hooked to a powered vehicle so that it could be moved to the scene of operation.

The demonstration took place in two manholes simultaneously. The manholes were five hundred feet apart but connected by the usual conduits. The conduits were not in use, but for the test were stuffed with rags, ropes and other combustible material. The manholes selected were on a street of ten per cent grade. The material was saturated with kerosene and ignited.

After burning and smoldering for some time a cover was placed over the manhole at the highest elevation with the nozzle of the carbon dioxide extinguisher suspended through an opening in the cover. The contents of three 50-pound cylinders were discharged into the manhole. The fire in the manhole was extinguished and the gas traveled down through the conduits to the lower manhole and extinguished the fire at that point.

I believe that this demonstrated the efficiency of carbon dioxide as an extinguishing agent for the type fires met with in telephone, telegraph, or illuminating and power line installations. Should we desire, this equipment is available for use by the Fire Department.

Arthur E. Chambers, Chief, Yonkers, N. Y.: A large metal cylinder, with metal cover, containing tar in the process of heat treatment for roof application, was placed in a narrow alley between two large frame apartments. It ignited. The metal cover held the flames from spreading and permitted the cylinder to become white hot. Because of the proximity of the buildings to the cylinder, great care was required in removing the cover so that the fire could be fought.

With a carbon dioxide extinguisher, the fire was extinguished a few seconds after pulling off the metal cover with a pike pole, and no damage was done to either apartment.

A large ground connection in a power plant became red hot and ignited the rear of a panel board, and the wiring in the vicinity. The fire was held in check by the use of a carbon dioxide extinguisher until the power could be shut off.

Intense fires resulting from inflammable liquids, dry cleaning liquids, running gasoline fires, and garage and boat fires of serious conditions have been quickly extinguished through the use of carbon dioxide on many occasions.

Charles A. McGinley, Chief, East

An Unexpected Burning of New York's Garbage

A garbage scow caught fire when a match or other ignited substance was dropped in one of them as it was tied up along with 23 others at Riker's Island, New York City, awaiting a tow to sea for dumping. It could not be cut loose for fear of endangering other craft in the harbor and hence spread fire to others adjacent. Fire boats finally extinguished the flames, and little real damage is reported.

Orange, N. J.: Several years ago I had an unusual experience with a running gasoline fire. An automobile tank was punctured in an accident and ignited. Burning gasoline flowed along the gutter of the public highway.

The first company to respond to the alarm was not equipped with carbon dioxide extinguishers. In fact only one company, a Squad Company, was using this type of equipment.

The first company to arrive stretched a large 2½-inch line and had accomplished nothing when I arrived. The Squad Company arrived shortly after I did. We used the carbon dioxide extinguisher, trained the nozzle on the fire close to the tank towards the ground with a stream of water to wash the gasoline fire far enough away from the tank to prevent reignition of the gasoline.

The results were very satisfactory and were achieved in a short time. They convinced me that all fire companies should carry a carbon dioxide extinguisher. All companies in this department now carry them, and they are used on many types of fires with excellent results—fires such as grease, gasoline, oil, etc.

I am sure that if we had not had this carbon dioxide extinguisher to use on this particular fire, the department would have appeared ridiculous before the large crowd that had assembled.

In my opinion, it is the best extinguisher for running gasoline fires in use today.

Stephen L. Marley, Chief, East Hampton, N. Y.: We have three carbon dioxide extinguishers in our department, and I carry one of the units on my own car.

On July 6, 1935, I received word of a fire. Arriving on the scene I found the transformer vault on fire. Oil had run on the cellar floor and was on fire. It was quickly extinguished by the carbon dioxide. Fire in the vault with a line load of 2,200 volts, was also easily extinguished.

In another case, a road tar machine caught on fire. The coal tar was at a boiling point. This blaze, too, was extinguished with little effort.

I have had occasion to use these extinguisrers on automobile and gasoline fires and find that they extinguish this type of fires quickly and satisfactorily. I would not be without them and I would recommend that they be placed in every garage and dry cleaning establishment.

William H. Kenah, Chief, Elizabeth, N. J.: We have been using carbon dioxide gas in our department for the past three years, and we find it very effective in extinguishing small fires in electrical equipment, automobiles, oil burning stoves and ranges, gasoline pumps, and quantities of gasoline and other flammable materials.

We have equipped all of our combination wagons with carbon dioxide extinguishers and are using these extinguishers in place of soda and acid. We avoid the damage to hose caused by leaking connections and we reduce the damage to materials that follows when spattered by soda and acid.

Ralph J. Scott, Chief, Los Angeles, Cal.: An accurate check has been made regarding the use of carbon dioxide extinguishers and we find that they were used from the period of May 1 to December 13, 1935, in the following manner: All of these uses have proven that this medium is particularly successful on such fires.

Running gasoline includes back fires in automobiles where carburetors were ignited, leaking gasoline tanks, and broken feed lines. The 24 fires of this type were all handled successfully.

Electrical equipment, including short circuits in automobiles, overheated motors and generators, and burning transformers, 31. All were handled without any trouble. Other instances are:

Grease on stoves, 7; automobile interiors fired by careless smokers, 4; pans of gasoline and sumps, 4; illuminating gas leaking and ignited, 3; tar kettles, 2; boat fire, where oil was flowing, 1.

There is no doubt that should the occasion arise, the other types of fires mentioned can be successfully extinguished, providing that the fires in printing establishments, garages, airplanes, lacquer finishing and boats have not gained too much headway.

It is the ideal method of handling fires in manholes and holds of boats where cargo and equipment damage would result from the use of water or other liquid extinguishers. We regard carbon dioxide with favor and resort to it on many occasions where we feel that its use will save property damage.

John H. Graham, Chief, Montclair, N. J.: The Fire Department has used carbon dioxide gas in extinguishing gasoline fires in automobiles, and on oil fires starting from oil burners, but we have not used these extinguishers to any great extent.

They have been used satisfactorily. They avoided damage by chemicals or water.

Lloyd Gramley, Chief, Aurora, Ill.: We have had carbon dioxide extinguishers in the department for some time and we have used them for fires in electrical equipment, automobiles and inflammable liquids. But the best demonstration was one where there was a running gasoline fire from an automobile. It put out this fire in a few seconds, where the other types of extinguishers would have required minutes.

Isaac M. Hubbard, Chief, Greenwich, Conn.: The carbon dioxide extinguishers are among the best department equipment. I have used them on electrical equipment, gasoline and oil fires, and in every way, they have proved satisfactory.

I recommend the carbon dioxide extinguishers as part of standard equipment on all fire apparatus units.

George Brencher, Chief, Darien, Conn.: I can truthfully say that the carbon dioxide extinguishers used in my department are the best all around extinguishers that we have.

On January 29, 1934, we received a call to a house fire at 2 a.m., when the thermometer was 17°. We made the two-mile run and found a fireplace partition was on fire. The 2½-gallon soda and acid extinguishers were frozen as was the 40-gallon acid tank. The hydrants were out of order. Nothing was left but two fifteen-pound carbon dioxide extinguishers. The fire was put out with these two extinguishers.

We have had good results with this type extinguisher on automobile fires. We obtained much better results with these than with others. They leave no dirt nor do they cause any damage.

We also had a fire in a tailor shop. A 10-gallon gasoline tank under pressure which operated a pants dresser, let go and sprayed gasoline over all the walls and floor. The carbon dioxide extinguisher put out the fire in thirty seconds.

Soda and acid are not used in the large tanks any more. If a chemical line is needed we carry a flexible gas hose hooked to the chemical tanks. We have a coupling that fits the carbon dioxide extinguishers. The men are trained to remove the hose and horn, attach the flexible hose, apply the required pressure, and do this before the men with the line reach the fire. No time is lost.

London Fights Six-Day Warehouse Fire

According to information which has just been released regarding the fire at Colonial Wharf, London, England, the Fire Brigade fought that historic fire for six days and nights.

Fire started on September 25, and it was not considered under control until 1 p.m., September 29. The brigade did not leave the scene until 6 p.m. on October 1.

During the fire the land companies pumped 22,000,000 gallons of water, while the fire boats pumped 48,000,000 gallons. The following supplies were used: Gasoline, 6,781 gallons; lubricating oil, 250 gallons; grease 56 pounds, and diesel oil, 870 gallons. (Note: 1 Imperial gallon is equal to 1.2 U. S. gallons).

More than eleven miles of hose were used, and much of it was so badly damaged that it will have to be replaced at an estimated cost of $9,000. The new fire boat "Massey Shaw" was given credit for having saved a warehouse and contents valued at $300,000.

CORRESPONDENCE

American Correspondent Wanted

To the Editor:

If there is any fireman in your country who would like to correspond with the writer upon points of interest in the fire service both in this country and the U.S.A., I would be very pleased to accept the privilege and assure him at all times of my cooperation.

I have been serving for the past seven years in different fire departments throughout London, and I am a graduate of the British Institution, the Institution of Fire Engineers.

EDWARD G. HOBBS,
Fire Brigade Headquarters, Enfield,
London, N., Middlesex, England.

EDITOR'S NOTE: Here's a chance for some progressive American fire officer to exchange experiences with a brother in the service in England.

PROTECTING LONDON FROM THE DANGERS OF FIRE

Some of the Apparatus Used by the London Firemen—Fire Departments of Two Other English Cities

By Chief Arthur E. Chambers

Fire Department, Yonkers, N. Y.

Chief Chambers recently returned from a European trip, during which he made a study of London fire fighting methods. This is the final installment of an article reviewing what he found:

The most recent acquisition to the London Brigade is an all steel 100 ft. turntable ladder, with hand rail reaching to tip of ladder, composed of four 25 ft. sections, with a deluge tip fitted to extreme top of ladder. The manipulation of this ladder with remarkable speed, and the ease with which a man and charged line is raised to the extreme height and the utter lack of spring or give to ladder while under severe strains, is a revelation and should prove a very serviceable addition.

Escape Vans

There are two types of escapes used in the Brigade, one a 50 ft. extension and the other 55 ft. when fully extended. Each escape comprises three ladders, the main ladder, middle ladder, and upper extension, the main ladder being mounted on a slide in the carriage fitted with eight brackets and rollers. The escape is provided with two hind wheel blocks, each secured to the frame by a chain and two additional wheel blocks are provided for use under the front of the wheels in an emergency. The ladders are tested each month by extending to their full height, a line being fastened to each string at two rounds in the center of the middle extension and the weight of two men applied on each line and then released when the escape should resume its normal position. If it buckles excessively, it is sent to headquarters; after this a man ascends and jumps on each rung or round, with feet spread about 15 inches apart, to test for weakness.

Escapes are carried on the apparatus in a cradle, which is a hinged steel framework fitted into the rear of the pumper; the axle engages reversible hooks fitted on the cradle, the upper edges of the framework acting as runners on which the escape slides when being mounted or removed; the head of the escape rests on gallows, fitted with a roller, at the extreme end of which are large projecting brass discs, which prevent the head from slipping off. The escape is secured by a head lashing; to release, a safety pin must be withdrawn, the pawl trigger on the lever depressed and lever pushed down to the full extent, thus raising the hook clear of the slot. On the head of the escape being pushed upwards, the hinged hook throws over, releasing the lashing, which is then thrown clear of the escape. This combination furnishes a dual purpose apparatus, capable of doing either truck or engine duty, or both.

First Floor Ladders

First floor ladders, resemble our "roof ladders," being 15 feet 8 inches in length and weigh about 45 lbs., equipped with a hook on each string.

Preventers (Pike Poles)

These average about 8 ft. in length.

Self-Contained Breathing Apparatus

A set of self-contained breathing apparatus comprises a small cylinder of compressed oxygen, fitted with a reducing valve and connected to a rubber breathing bag by a rubber supply tube; having two compartments communicating at the bottom and connected at the top by flexible breathing tubes fitted with valves, a mouthpiece and nose clip. A pressure gauge is connected by flexible metal tube to the reducing valve; weighing complete about 33 lbs. and is carried in canvas harness over the shoulders and strapped around the waist. Goggles of soft rubber may be worn while using mouth piece and nose clip. When dealing with acids, ammonia, etc., a number of masks are available which completely cover the face: the wearer being independent of all external air supply, and can work for considerable periods under bad conditions. The cylinder, when fully charged, contain 6 cubic feet of oxygen gas, compressed to about 1,800 lbs. per sq. inch; the pressure must be reduced before oxygen enters the breathing bag, a reducing valve being available for that purpose, a charged cylinder lasting about one hour.

Bellows Smoke Helmet

It is composed of a hardened leather helmet, with two hinged mica windows in front. The neck of the helmet, made of soft leather, straps around the wearer's neck. The helmet is fitted with a fresh air inlet with a connection for an air tube and also a valve at the top of the helmet through which the exhaled air passes. One end of the flexible air tube is attached to the inlet and the other to a special double-acting bellows manipulated by a man in the outer air, the pressure of the air forced into the helmet through the neck of the helmet prevents the entrance of smoke. A metal junction piece is fitted to the air tube about 3 feet from the bellows, to which a voice pipe, fitted with a diaphragm, is connected and verbal communication can be maintained. An excessive supply of air is reduced by opening a shutter for this purpose in the front of helmet. The use of this helmet is not advocated in atmospheres charged with poisonous gases or chemical fumes.

Ideal Factory from Fire Prevention Standpoint

Here is a model of the perfect or ideal factory, protected in nearly every imaginable manner from fire and modern means for extinguishing one, should it happen. The 5-story solid concrete building of H. Lotery & Co., one of England's largest uniform manufacturers, was one of the many inspections I had the opportunity of making. The standpipe system control valve is located in a glass case at the entrance, and a large glass enclosed control panel, in which are levels marked to correspond with the various floors, will open the windows on each floor, when that particular lever is pulled at entrance, and in addition, one pane of glass in every window is controlled by a fusible link and will open automatically under heat conditions, as will all sky-light and wall ventilators. A drencher system or sprinklers, for protecting building from outside hazards, can be placed in operation also at the entrance, and the boiler room is isolated entirely from the building, being protected by fire resisting ceiling and walls, and can be entered only from the street, allowing no contact with main building.

New Fire Fighting Device Demonstrated in London

A demonstration of a new form of fire extinguishing device was given at Clapton Stadium, London, by the Society for the Distribution of Apparatus for Civil Protection, of Rome. The extinguishers or "bombs" are placed on ends of poles and these are placed at strategic positions in the burning structure. The bombs attached to poles may be seen on the ground in the foreground. This system of protection has been installed at the Vatican.

The building is entirely fire proof, the contents being protected with every known method of fire-fighting equipment. Shutes for transportation of goods from floor to floor are constructed of steel, with tight fitting doors, controlled by fusible links; the elevator shafts are equipped wtih sliding steel doors, which must be closed before the elevator can be operated, and in addition, another steel sliding door is operated by a fusible link, sealing the shaft at that floor from fire contact. All windows are of wired glass and steel frames and the sprinkler distribution covers not only the entire stock and contents, but corners and out of way places, including skylight areas. It is claimed that 90 per cent ventilation is possible without entering the building proper.

The London Fire Brigade holds weekly exhibitions of apparatus and drills at headquarters each Wednesday afternoon, admissions being by invitation, during which ceremony the famous London Fire Brigade Band, under direction of Frank Burnell, R.M.S.M., renders selections.

Leeds, England

Leeds, one of the largest centers for the manufacture of ready made clothing, has an active Brigade under the leadership of Charles McKinley, Superintendent, who has brought his organization up to a high state of perfection. I visited the "Ritz" and "Paramount," both large and up-to-date theatres, having vaudeville, with pictures, and found preventive and protective methods excellent. Found picture booths had large glass ventilator in roof, in addition to the customary flue from machine, the side glasses of ventilator being controlled by fusible links, and the room protected with sprinklers, which would operate at the wish of the machine operator, the valves being located outside entrance door. The design of the booth is such that the operator enters the outer air from the theatre proper, before he can enter projection room; rheostats and the back of the main panel are built up and vented to the outer air. In addition to foam and tetrochloride extinguishers, a red painted container holds an asbestos blanket for immediate use. The rewinding room is separated from the booth, and is also protected by sprinklers in addition to the regular equipment.

As in London, Leeds compels the employment of an ex-fireman or a man trained in fighting fires and approved by the Chief Officer, to be stationed at all times (whether theatre is open or not) in the theatre, the cost to be charged against the theatre, and in addition, the regular assigned theatre inspection fireman attends during performances. A direct telephone line must be maintained (at the expense of the theatre) to Brigade headquarters. The restrictions for public assembly are most rigid and religiously carried out.

The various type of apparatus here are known as the "Dennis," "Leyland" and "Merryweather." While the style of apparatus throughout England differs greatly from that used in the United States, there is one here, known as the "Dennis No. 4," designed under plans of Superintendent McKinley, which resembles our equipment, the Chief Officer having in mind the narrow margin allowed in traffic and the steep grades here requiring a lower gear ratio. It resembles a squad wagon, with side seats, and is 20 ft. long, 6 feet, 6 inches wide, with a wheel base of 11 feet, 6 inches, weighing, fully loaded, with crew, under 5 tons. It is equipped with a 100 h.p. motor, with a general ratio of power to weight of 10 h.p. to a ton. For equalizing or distributing the weight, the pump is located in the rear, behind the rear springs and so designed as not to interfere with men getting into the body of the apparatus; an auxiliary tank containing 40 gals. of water, fed by CO_2 tanks, is hidden beneath the seats on right side, directly over rear axle, and can be fed when empty by a line to the pump. It carries 16 lengths of 100 ft. 2¾-inch fibre flax unlined hose beneath seats, and has a reel of ¾-inch rubber hose, 180 ft. in length, known as "first aid." All hose, even the 5-inch suctions, are equipped with the "instantaneous snap coupling," as used in London.

A 35 ft. extension ladder and a 11 ft. roof ladder are carried on the left side of apparatus, to equalize the weight of the 40 gal. water tank on the opposite side; a flood light equipment, with a large reel of flexible cable, allows lights to be carried to various points. The nozzles carried are ¾-inch, 1-inch and 1¼-inch.

Another type is the "Dennis No. 3," with a 700 gal. pump, located near the driver's seat, and the usual ladder equipment, and in addition a "Merryweather" Exhaust Suds outfit, using a black liquid, known as "suds," the generator being operated by a ½ h.p., 12 volt, motor driven, starting battery.

A connection from the motor exhaust pipe is attached to generator and another connection made to the hydrant, and water, black suds liquid and exhaust gases form the combination, which, mixed at nozzle or mixing tube, carries sufficient solution to furnish 2,000 gals.

A worthwhile innovation is the "emergency pump," used for out-of-way places, soft ground or pumping cellars, etc. It is a two-wheeled vehicle weighing in all 1,200 lbs., using a gasoline motor, without radiator being cooled by water circulation, and equipped with a 20 h.p. turbine engine and a pump delivering 250 g.p.m., at 120 lbs. pressure. The simplicity of the machine, its weight and compactness and the ability to readily transport it anywhere by hand or attached to rear of one of the apparatus, makes it an ideal solution for those "difficult to reach" spots, so often met with.

The cooling system of all apparatus are equipped with the Emerson Electric Heater, with snap connections, insuring a temperature in motor and radiator for quick starting in cool weather.

Southampton

Southampton, known as the County Borough of Southampton, with an area of 24 square miles, 7 miles of waterfront and a population of 176,000, is one of the largest and most active shipping centers, has a Brigade under command of E. Hayward, the dock properties being protected by auxiliary or private brigades, which in time of difficulties are re-inforced by the regular brigade. The type of apparatus is similar in design to those throughout England and like Leeds, have the small portable pump for emergency use. The apparatus seen were of the Leyland type, with the turntables "Morris-Magirus" type built by John Morris & Sons, Ltd., of Manchester and equipped with wooden ladders.

The department is quite efficient and well equipped, but the quarters, like those visited throughout England, are cramped for room and do not allow the apparatus much side room.

There is no question about the activity of Fire Prevention throughout England and the rigid inspections of the departments, the fact that no wooden buildings are allowed, and that the public are educated along protection lines gives evidence to the average observer that the question is a serious one and honestly lived up to.

Test of Rescue Work at an Automobile Fire

An asbestos clad ambulance man at Plymouth, England, is shown demonstrating a new device for removing victims of automobile or airplane accidents, where fire breaks out in the wreckage.

New Hampshire Fire Chiefs Meet

Ralph G. Hinkley, General Agent of the American Insurance Company, was the principal speaker at the luncheon and meeting of the New Hampshire Fire Chiefs' Club which was held in the Eagle Hotel, Concord, N. H., on December 11.

Chief John B. Riley, of Keene, presided. Among those who spoke were Chief Charles L. McCarthy, Worcester, Mass., President of the Fire Chiefs' Club of Massachusetts; and Chief Albert C. Melendy, of Nashua, N. H.

HARRY BELKNAP.

Minneapolis, Minn., has received three Buffalo 1,000-gallon pumpers and a Pirsch 85-foot aerial ladder.

THE ROUND TABLE

For Practical Discussion of Current Fire Department and Fire Management Problems

TESTING BRAKES ON FIRE APPARATUS

WHEN, WHILE RESPONDING to fire at a fair rate of speed, some object such as an automobile or a man suddenly looms up in the path of the approaching fire apparatus, prompt action is required. Neither prayers nor the fervent hopes of the bystanders will avoid the accident nor lessen the possible damages. The heavy apparatus with its high momentum must be stopped, and stopped in the least possible space.

It is at such times that the driver and the officer on the apparatus realize the value of brakes that have been properly tested as regards their braking ability.

Most departments have established brake tests that are much more severe than those required of commercial vehicles. The least suspicion of brake trouble is sufficient to send the unit to the repair shop for immediate attention. Usually brake adjustments are given preference to all other forms of repairs.

Due to the large response received to this discussion, it will be concluded in the next issue. Should you have any comments that you would like to add, you are invited to write to the "Round Table Editor," FIRE ENGINEERING, 24 W. 40th Street, New York, N. Y.

Discussion of the Question

Richard Lee Smith, Chief, Pittsburgh, Pa.: Captains, and particularly the drivers of the fire apparatus, are held responsible for the condition of the brakes on apparatus at all times.

They are checked on all runs made to alarms and any driver or operator (plus the officer in charge) worthy of the responsibility resting upon them, both to their own safety and that of the public, will know whether their brakes are in good condition or not.

Tests are made by the Fire Department and Municipal Shop and are rather more severe than the requirements of the State regarding commercial trucks. Monthly reports are made, covering all apparatus and brakes. Where they are found defective, or become so, or there is any doubt as to their safety, a report is made by the Captain over the phone, followed by a written report through regular channels to our Superintendent of Municipal Repair Shops. A shop man is immediately dispatched to check condition and see that they are adjusted safely and are fit for the service required of them.

Our officers and men are kept on their toes pretty much all the time, partly due to a Trial Court hearing following every accident. Inevitably the question as to the condition of brakes will arise and woe betide the officer or driver who states his brakes were not in good condition or had not been reported.

The real answer to the brake question is in having the company commanders keep a close check through their drivers or operators on the brakes, plus a provision for immediate repairs and adjustments.

John C. Moran, Chief, Hartford, Conn.: All our apparatus is inspected monthly by the machine shop mechanics. This inspection also includes testing brakes. All such tests are made by the Fire Department.

HERE IS THE PROBLEM

What provisions do you have to determine if the brakes on fire apparatus are in good condition?

Are the tests, if any, made by the Fire Department or representative of the state?

What are the inspection requirements? Are they comparable or more severe than those required of commercial trucks?

If you do not have any requirements regarding the safety of such brakes, what methods would you suggest to insure effectiveness of brakes?

Our inspection requirements are probably more severe than those required of commercial trucks. After equalizing the brakes adjustments, a real brake test is made on the road. All worn brake linings are replaced whenever necessary. I believe, however, that what is of equal importance as good brakes, is exercising special caution as to speed by those operating motor apparatus while responding to alarms of fire, especially in congested sections of a city where company officers should see that their apparatus is under immediate control.

Wm. J. Sudeith, Chief, St. Paul, Minn.: Operators and drivers are required to report to Superintendent of Apparatus at once if brakes are faulty in any way. If the brakes need taking up, that is done at once. If the lining is worn, the brake shoes or bands are replaced immediately. If more than adjustments are necessary on inspection, the apparatus is ordered to the Repair Shop for necessary repairs and renewals.

Tests are made by the Fire Department or at the department Repair Shop by skilled mechanics.

In this department good brakes are considered to be of the utmost importance. In fact, it is just as necessary to be able to stop as to start for the reason that fire apparatus travels at high speed, generally through heavy traffic where the ability to stop or slow down easily and quickly may prevent an accident and avoid injuries or loss of life, or the use of the apparatus.

We think our requirements and methods which demand the best results obtainable are all that can be expected in reason. Well designed brakes with drums in good condition and good brake lining are essential.

W. C. Beckner, Supt. of Maintenance, Cincinnati, Ohio: We have no provisions for testing brakes, except on the road, and these are made by Fire Department mechanics. This is done when the engineer or driver makes a complaint.

We would suggest that a brake testing machine of sufficient size for this heavy apparatus be purchased, so that the brakes may be properly equalized.

Fire apparatus does not travel enough miles to wear out the lining, but the lining is renewed occasionally on account of age. Most of our apparatus was made before the days of

four-wheel brakes and the modern lining is not very satisfactory. We had a manufacturer furnish a lining with a high coefficient of friction which is very good for two-wheel brakes. It is too severe for four-wheel brakes, and would soon wear out on an ordinary work truck.

Leo J. Urbanski, Chief, St. Joseph, Mo.: We are not required to make any test of brakes and all of the tests that are made, are when our drivers report them out of order.

I would suggest a state law requiring all fire apparatus to have mechanical and hydraulic brakes. We have one truck with hydraulic brakes and we never have any trouble with it.

Charles J. Brennan, Chief, San Francisco, Cal.: Since early in 1914 all new apparatus had to meet the following requirements:

Exclusive of any power braking mechanism such as vacuum, compressed air, or hydraulic, the tests are conducted by manual braking application on either four or two-wheel brakes.

Both the foot brake and emergency brake have to be capable of stopping the apparatus, and have it under control on a 22.2 per cent grade, going up or coming down the hill, with motor dis-engaged (with clutch out).

If brake design would not fulfill these requirements, they had to be redesigned to meet the requirements.

All braking tests are made by the Fire Department.

The need of brake adjustment is reported by the company commander, at which time an inspection is made, and if it is impossible to make the adjustment in company quarters, the apparatus is sent to the repair shop. After brake repairs are made, the apparatus is subjected to the braking test as described.

The method outlined herewith has been very satisfactory in this department taking into consideration the severe grades upon which the apparatus is obliged to operate in San Francisco.

Wm. J. Dooling, Chief, Malden, Mass.: We have a crew of four men attached to our mechanical department who take care of the brakes on the fire apparatus. The operators of the apparatus notify them when the brakes need to be adjusted, and they are immediately corrected.

It is my understanding that all motor vehicles registered in Massachusetts, and having plates, are subject to brake inspections twice a year. The inspectors are automobile mechanics appointed by the State and are not connected with the Fire Department. We have our apparatus inspected as required by the State.

The requirements are that the apparatus going a speed of 20 miles per hour shall stop within a distance of 45 feet if they have two wheel brakes, and 35 feet if they have four wheel brakes. On emergency brakes, 75 feet is allowed on all trucks. I believe the test is more severe for fire apparatus, as they are tested with a fully equipped load, while commercial vehicles usually test with the trucks empty.

C. M. Johnson, Chief, Knoxville, Tenn.: Drivers of apparatus are instructed to take careful notice of braking conditions; also to make written reports of conditions of brakes. This report is turned over to the Master Mechanic, who makes the necessary repairs or corrections.

Tests are made by the Fire Department only. This test is more severe than required of commercial trucks.

We would advise the use of proper mechanical brake-testing devices.

Frank Cochrane, Chief, Phoenix, Ariz.: The engineers on each of the trucks are responsible for the good condition of the brakes. They try them out on calls and when going to the drill tower.

Brake tests are made by the Fire Department engineers whenever they drive to and from fire calls.

The inspection requirements are more severe than those required of commercial trucks. Every day, at the change of shift, the engineers inspect the brakes and drums. Whenever the trucks are in the shop for repair they are thoroughly examined and brought up to first class working order, by the Master Mechanic.

The brakes should be tested at least once a day on each truck, preferably at the change of shift when the motor is tested.

C. K. Coltrane, Mechanic, Casper, Wyo.: The brakes are tested once a month by the mechanic. However, I believe it would be a good thing if we had a State Inspector. The only other provision I can suggest is that every piece of fire equipment should be equipped with four wheel brakes, hydraulic preferred.

J. M. Evans, Chief, New Orleans, La.: Fire Department brakes are tested on a brake testing machine. They are tested by the Superintendent of Repairs of the Department. Such tests are more severe than those required of commercial trucks. Nothing is overlooked to insure good brakes.

We have the following method to guarantee good brakes. All relining of brakes is farmed out (the best of lining is used). Brake drums are inspected for out of roundness, roughness, defects, etc., rough drums are trued up; if drums show any defects they are discarded and new drums used.

Brakes are assembled in the Fire Department Repair shop. Brakes are inspected and tested by the shop foreman. All of our chauffeurs are instructed to report brakes for any reason whatsoever (whether they know what is wrong or not) to the repair shop immediately. The shop service man then inspects the brakes and condition of the brake mechanism is reported.

The service man does all minor repairs to brakes in engine quarters. If brake job reported is too big for the service man, the engine is taken out of service and moved to the repair shop for the necessary adjustments. I can safely say that we do all we can to have our brakes in A-1 condition at all times.

E. F. Coop, Chief, Pasadena, Cal.: We have frequent inspections and tests of the brakes. Should there be anything wrong, the engineers and drivers report it immediately. These tests are made by the master mechanic of the department. His judgment is accepted.

We have some very old machines on which we have installed a leverage device which gives added braking leverage. All engineers and drivers have definite instructions to keep their machines under absolute control at all times. They know the inherent deficiencies of the braking systems on older machines and take that into consideration.

John J. O'Boyle, Chief, St. Louis, Mo.: Engineers and Captains are held strictly responsible to report if brakes are not in good and efficient condition. Engineers are judges by reason of their apprenticeship service in the repair shop.

Tests are made by an officer of the training school whose duty is to instruct all engineers. Brakes are adjusted at the repair shop and okayed by this officer after being tried on a machine for that purpose, and given a road test.

We believe our test to be more severe than that given commercial trucks as we insist on having brakes in best possible working condition. In addition to the above mentioned officer, the master mechanic also makes inspections at different times to trace down any defects of any kind.

E. A. Johnson, Chief, Boulder, Col: Following is the test we make with our apparatus, all of which is equipped with four wheel brakes.

Speed of 20 miles per hour, stop in 10¼ feet; speed of 25 miles per hour, stop in 22 feet; speed of 30 miles per hour, stop in 34¼ feet; speed of 37 miles per hour, stop in 62 feet; and speed of 40 miles per hour, stop in 77 feet. This test is made on an asphalt paved street almost level. The weight of the apparatus is seven tons.

Wm. Freeh, Chief, So. Bend, Ind.: The provision we have to determine if the brakes on fire apparatus are in good condition is one, that up to the present time, has been very successful and most satisfactory in our city. This favorable result is entirely due to the ability of our Chief Mechanic, whose discretion has been almost flawless.

Tests are made by the Fire Department. The inspection requirements here are the periodical inspection of fire apparatus and this has been most beneficial in detecting any mechanical defect that may have occurred.

Maurice Keating, Chief, Rochester, N. Y.: The officers of all companies are required to immediately report if the brakes are not in first class condition. All tests of brakes on our fire apparatus is made by the Fire Department.

The auto mechanic from our repair shop inspects brakes and puts them in good condition.

F. B. Moore, Chief, Nashville, Tenn.: As each driver relieves the other daily

THE PROBLEM FOR THE NEXT ISSUE

Due to the large response to this problem, it has been necessary to divide the discussion into two parts, and to conclude it in the February issue.

he tests his engine for starting and also makes test of brakes.

Any defects noted are reported immediately to our repair shop. Our Superintendent of the Repair Shop also makes regular inspections of brakes, keeping them in first class condition.

Wm. Lutz, Chief, Wilmington, Del.: Brakes are inspected after each run, and perfect working condition required. Monthly inspection reports are made to the repair department.

Tests are made by the repair department with drivers of apparatus. The state inspection is made annually. The requirements are the same as demanded of commercial trucks.

Periodic inspection and road tests of brakes would insure maximum safety at all times. Replacement of bands or worn-drums should be attended to by experts in this line. Adjustments, made by capable brake mechanics to insure perfect braking on all wheels, should also be done.

Daniel H. Shire, Chief, Mason City, Iowa: Once a month, or if at any time the driver or the officer in charge of the apparatus feels that his apparatus brakes need looking after, the brakes are tested and adjusted.

A test is made by a private firm here who makes a specialty of testing brakes, etc. The state requires commercial trucks and private cars to be tested for brakes by the Highway Patrol, but no test is made of fire apparatus by the state.

We require that the brakes all hold, and under certain conditions that they be able to stop the apparatus in a reasonable distance.

We have no regular requirements, but feel that fire apparatus as a whole is neglected too much when it comes to brakes. The best brakes you can have are none too good for fire apparatus.

Edward T. Rose, Chief, Wheeling, W. Va.: Each driver when he reports for work at test time, moves the apparatus forward and back, testing the brakes both ways. He then reports to the Captain, conditions of the battery, gasoline, engine and brakes. Tests are made by Fire Department employees who in turn report any trouble to the mechanic.

Our inspections and tests are much more severe than those given the commercial autos, as they are made every day and the least trouble is reported to the mechanic who has strict instructions to repair brake troubles before anything else.

Instructions are given the men to keep water off the brakes when washing the apparatus wheels, by using a sponge. We do not allow them to flush the wheels unless it is absolutely necessary, as the brakes are useless when the lining is soaked with water.

E. E. Mayes, Chief, Anniston, Ala.: I have the brakes checked after each trip by the city mechanic. We also have each driver start his motor each morning and go over the battery, gas, oil and brakes. If the driver finds the brakes in need of adjustment, or any other part of the truck, it is repaired at once.

I believe that brakes on a fire truck should be in first class condition at all times, for we do not know when a call might come in. I believe more accidents are caused from having bad brakes.

My method first is to buy the best brake lining that can be bought and to have them adjusted after each run.

ANSWERS TO PREVIOUS QUESTION

The following replies were received in answer to a previous question on the measures taken to protect guests in non-fireproof hotels against fire, and the means employed to enforce such regulations:

W. P. Weeks, Chief, Battle Creek, Mich.: The hotel law in Michigan provides for regulations regarding non-fireproof hotels.

Our law requires that if the building is not of fire resistive construction, and is not protected by an approved automatic sprinkler system, there should be on duty at all times, one employee for each one hundred persons occupying the buildings. It requires also that suitable rope for each room and that not less than one rope for three persons must be provided. Persons not complying with the regulations of our hotel law are subject to imprisonment or fine, or both.

Edward Steinway, Supt. Fire Prevention Bureau, Cincinnati, Ohio: We see that the fire extinguishing equipment is kept up in first class condition at all times and we make more inspections in non-fireproof hotels than in any other type of building.

No doubt the hazard is greater in such buildings than in a fireproof building, as they are built of inflammable material and of old construction.

We issue orders where necessary according to our code on hotels and we use our personal liability ordinance.

E. C. Daunter, Chief, Jackson, Mich.: We enforce the new state law regarding hotels and apartments. We have found such buildings very hazardous, due to intoxicated patrons smoking in bed, and general carelessness.

We have frequent inspections of all hotels and apartments and advise employees and owners as to their duties in case of fire. Such methods have been very effective so far.

A. T. Cochrane, Chief Building Inspector, St. Louis, Mo.: The protective measures pertaining to hotels and apartments is rather well defined in Ordinance No. 38358, Section 3588, etc., and compliance with these requirements is strictly enforced on all hotels of a maximum bed capacity that places them under our jurisdiction. Briefly, these requirements pertain to the number and location of fire escapes, exit lights, directional signs, and condition of fire escapes and accessibility of same. All requirement for replacement and proper maintenance of fire extinguishers or standpipe and hose connections, and also that gas appliances have permanent metal connections rather than rubber tubing as is sometimes employed in lower rate rooming houses. Inspection is also made as to location and condition of heating plant, and the presence of any accumulation of rubbish or other combustible material which might cause a fire.

As a rule such buildings are rather hazardous due to the type of construction employed in the buildings themselves and in many cases the potential hazard is further intensified by the presence of rubbish accumulation or storage of inflammable liquids or solids and to the fact that fire extinguishers are not kept properly charged. The question of management or operation of these hotels enters largely into the degree of potential hazard, as many of these buildings are no more hazardous than the ordinary flat or residence of a similar type of construction.

The person in charge, or the manager, is notified in all cases of any violation.

Lloyd E. Gramley, Chief, Aurora, Ill.: Frequent inspections are made of all non-fireproof hotels in our city. We have found such buildings to be very hazardous due to the wooden stairways, lack of fire walls and fire doors to keep fire from spreading through the entire building.

We have been very successful in enforcing our city ordinances, through the thorough cooperation of our department with the State Fire Marshal, of what is considered necessary fire prevention measures. This is followed up by a written notice to the operator of the hotel. Reinspection is made in approximately ten days on ordinary violations and considerably sooner on extra hazardous violations to see if instructions have been complied with. If compliance has not been obtained, the City Attorney notifies the operator of the hotel that compliance must be secured or matter will be prosecuted in the City Court. About ten days after the above notice by the City Attorney, another reinspection is made and if compliance has not been secured a Court Summons is issued for appearance of the operator in City Court. This hearing invariably results in operator complying with instructions, in which case a fine is not imposed, or upon the imposition of a fine which is remitted upon immediate compliance with instructions previously issued. The matter is followed up in City Court vigorously until adequate compliance is obtained.

In the majority of cases, the above measures have proven effective. However, in some cases where hotels are operated by non-resident owners, results obtained have not been satisfactory, due to the fact that the City Marshal cannot obtain service for the appearance of the party charged with violation in our City Courts.

George S. Towle, Chief, Larchmont, N. Y.: We have no special measures to protect guests in non-fireproof hotels. Our Fire Prevention Code and Building Code covers the entire matter. We enforce this by acting in accordance with it.

Thomas R. Hartnett, Chief, Racine, Wis.: We protect guests in non-fireproof hotel buildings by continuous inspections. We find buildings of this type very hazardous due to the fact that they are not properly constructed, having no fire walls or any fire stops.

We send special notice from my office notifying the owners of such buildings of the recommendations which the inspectors advise. This method has proven effective in a great many cases, but of course there is always the exception to the rule.

Questions and Answers

NOTE—Readers are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified

Extinguishing Aluminum Dust Fires

To the Editor:

How would you proceed to extinguish a fire near an aluminum scrap pile, such as borings and chips? The pile is located in a well constructed building with metal sash windows, brick walls and exposed steel trusses.

Explain the characteristics of aluminum metal when involved in fire in either pulverized or chipped stage.

Do you consider the application of aluminum paint a fire hazard? Give reasons of your opinion in detail.

V. G.

Answer: Some years ago Alan Leighton, physical chemist, Bureau of Animal Industry, U. S. Department of Agriculture, conducted a test on extinguishing aluminum dust fires. Ordinary salt proved to be most satisfactory in accomplishing the desired results. However, Mr. Leighton did not employ some of the later methods used. Salt is poured on a pile of red hot aluminum; it melts on the surface and forms a thick crust which extinguishes the blaze.

In one factory handling aluminum dust, oil is poured on the fire until the oil burns and the aluminum fire is smothered, whereupon carbon terachloride is used to extinguish the fire in the oil. Carbon tetrachloride, however, should not be used by itself on aluminum fires, for the reaction is violent and may do considerable damage.

Aluminum metal when involved in fire, burns with a very white, intense heat. Probably the highest temperature outside of the electric arc is produced by such combustion. It is first necessary to heat the aluminum, or a part of it, to a point where it will ignite. From this time on combustion is rapid and intense.

I do not consider the application of aluminum paint a fire hazard, for the particles are segregated in the liquid in which it is mixed. Of course, the solvent, or liquid, itself may be inflammable but the same methods of handling any other inflammable liquid fire would be employed in this case.

Tank Truck Fire, Etc.

To the Editor:

(1). A tank truck and trailer filled with gasoline is in a collision with a south bound passenger train at Ave. S., and Dean Street. The train stops at a point where the truck is between the baggage and mail car. Both truck and trailer are afire, and tanks are ruptured. The driver is shaken up but not seriously hurt. Crowds are gathering. You are the Battalion Chief to arrive with a regular first alarm assignment. Explain your orders and how you would fight the fire. Note: This location is a street through a railroad yard with no buildings within 300 feet. There are four hydrants within 300 feet, with 135 pounds pressure on large mains. There are four engine companies and two truck companies and two chiefs on first alarm.

(2). There is a small fire visible through window of a 1-story brick warehouse, 50 feet by 100 feet. The warehouse is used for storage of baled rags. The place is being fumigated with cyanide gas. The proper notices are posted and all precautions compiled with. You are the Chief in charge, with three engine companies and two truck companies. Describe in detail your orders.

(3). You are off shift and in civilian clothes on a sales day in a department store basement. There are good crowds of women present. Two stairways 40 feet apart. A woman back in the crowd screams "Fire!" You can not see any fire or smoke. A panic is evident. What would you do? Describe your action in detail (Neglect the elevators). Note: Basement too crowded to see woman.

Answer 1. The chief danger in connection with this fire is the possibility of injury to passengers in the train and also to bystanders due to the presence of a large quantity of gasoline which is afire.

Immediately upon arriving at the fire order the crowds back and dispatch a man to clear the passengers from the cars adjacent to the fire.

If this can be done quickly, then the train should be broken so that the baggage car, mail car and succeeding coach could be drawn away by the locomotive. This will leave the balance of the train of cars well out of way of the fire, provided that streams are gotten in operation quite promptly.

It would not be safe to pass the entire train beyond the fire and it would probably be impossible for the engine to back up, due to the exposure of the engine crew to the fire.

If there are exposed cars on other tracks, switch yard superintendent should be called at once by a man especially delegated for this purpose and a switch engine secured for removing cars out of the danger zone. Sometimes, if there is but one or two cars exposed, these may be removed by crowbars by placing the crowbars between the wheels and the rails, and working the bars up and down as you would the handle of a jack.

Place danger signals both front and rear of the train, that is, well to the rear of the last car of the train and well ahead of the locomotive. The precaution is necessary to prevent other trains approaching too near.

As to extinguishing the fire, carbon dioxide gas in quantities would probably best serve, due to the fact that there is flowing gasoline from the ruptured tanks, and this gasoline is afire. Foam is not fully effective in extinguishing flowing gasoline fires. Dry powder extinguishers, if present in sufficient size, might be used to effect (these extinguishers are of the type where powder is blown on the fire by inert gas). Foam is effective for covering pools of gasoline which may be ablaze or extinguishing gasoline burning around the wreck.

And now to the assignment of companies which respond to this fire. Four engine companies, and two truck companies can be expected. Engine company number one can be placed at the nearest hydrant, and two lines stretched at once. One of the lines can be used for wetting down the cars which may be exposed to the fire, while the other may cover the wreckage where gasoline is not afire.

Second engine company stretch one line to fire and wet down around fire and operate on fire as judgment dictates. Engine company number three and four are operated likewise.

Members of the first truck company should be ordered to see that all passengers are out of exposed cars and also aid engine companies in operating on the fire as well as assisting in getting the track cleared of cars which might be exposed to the blaze. Truck company number two may be used as conditions may warrant upon its arrival.

In handling the fire in the ruptured gasoline tanks it is well to keep the tanks wetted down as much as possible with streams. It may be next to impossible to extinguish the fire, however, due to the fact that gasoline may be flowing from points not easily reached by streams.

There is always the danger of explosion so that men should not operate too near the blaze, and should operate from an elevation, if such is possible.

Answer 2. The chief danger here is the presence of cyanide gas. Men should not be permitted to enter the structure unless equipped with proper

gas protection equipment (gas masks or self-contained helmets). Nor should they be permitted to enter the building even with such equipment until ventilation has been provided. Thorough ventilation through the roof of the building is essential, as well as opening up such windows as are available.

There is a possibility of explosion, although such explosions do not frequently occur, due to the fact that the mixture of cyanide gas for fumigation is usually not of such density as to make it combustible in air.

Overloading of floor by absorption of water by the bales of rags, represents no life hazard, due to the fact that the building is one story in height, and the floor could collapse only if there were a basement beneath.

Protection of exposed buildings around the fire building from the gas released through ventilation is essential. Windows on such buildings should be closed.

After thoroughly ventilating, men equipped with proper protection against gases may proceed with the lines to the fire and extinguish it. The first company should be sent into the structure to operate on the fire from the front and the second company might proceed to the rear, if proper equipment is available. Both truck companies should be employed for ventilating the fire building as well as seeing that windows are closed on adjoining buildings, particularly if such adjoining buildings are inhabited.

Answer 3. Danger here is the possibility of a stampede. If stampede occurs, loss of life may be heavy. It is better to look after the interests of the majority than the safety of one (who might have been injured). For that reason getting the crowd safely out of the building and in an orderly manner is of prime importance.

Step to the nearer of the two stairways, get at a point of vantage and direct the crowd to that stairway, provided it is the more remote from the point at which the alarm of fire was given. Urge the shoppers to step lively but also impress upon them that there is no immediate danger. While this is being done, the location of the fire, if such has actually started, can be determined. Immediately after movement of shoppers is under way, and floor begins to clear off, close check-up can then be made of the cause of the alarm. If there is a fire which cannot be extinguished with any facilities available, alarm should be transmitted at once. The upper floors should also be cleared out, if there is a possibility of the fire spreading, or if there would likely be any danger of panic, due to the number of shoppers on the floors above.

Should there be congestion at the one stairway, and if the other stairway is not endangered, some of the shoppers could be directed to take the other stairway after the crowd has quited down.

If the store building is equipped with an alarm system, and if inspection shows that fire is gaining and may reach the stage which might cause panic or danger to the people on the floors above, alarm should be sounded at once and building cleared of all shoppers and employees.

Westchester Chiefs Discuss Outside Help

A lively discussion on the best method of calling for assistance in the case of a large fire that threatens to get beyond the control of the local department was a feature of the monthly meeting of the Fire Chiefs' Emergency plan. The meeting was held on the evening of December 18, at Fire Headquarters, North Pelham, N. Y., with President Krows presiding. The members were welcomed by Mayor D. Amato, of North Pelham, Chairman Roi Wooley, of the Ways and Means Committee, announced that the question of water supply of the various communities of Westchester County would be taken up during the season.

The Chairman called upon Clifford Van Vleet, who described in a short talk the work and objects of the Southern New York Municipal Signal Association, a subsidiary of the National Municipal Signal Association. This body is composed of the heads of Fire and Police signal departments, and the next meeting is to be held at Freeport, L. I., on January 18.

Judge Hoop told of the plan for legislation for firemen to be carried out by the Committee on Legislation. He referred to the hard work necessary to defeat legislation allowing the transportation of dynamite through the streets. He obtained a veto by Governor, after this dangerous bill had been passed by both houses of the legislature.

A paper on "Fire Prevention in Hospitals and Other Public Buildings" was read by the Chairman of the Ways and Means Committee.

Chief Johnson, of the Fairview Fire Department, described his experiences in a recent large fire in which assistance had been given by neighboring departments. This led to a discussion on the subject of outside help in the case of large fires. Ex-Chief Mulcahey believed that it was wise to rely upon the help of large departments, such as New York City, where available, even if such a department may be several miles away. If the smaller departments are called upon, it endangers the stripping of the town to which the assisting department belongs, of its proper protection in case of a local fire developing. Others argued that, with a proper cover up system, this danger could be avoided. In this connection, Captain Dawkins called attention to the chart issued by the Plan, outlining the available apparatus on call. Others who discussed the matter were Chiefs Brennan, Gibson, Johnson, Wooley, Matthews and Judge Hoop.

Captain Riviere spoke of the retirement from active service of Chief Towle, Larchmont, "Father of the Plan," and a committee was formed to formulate a proper testimonial. The death of Ex-Chief Angevine, of Mount Vernon, was also announced, and attention was called to the fact that he had been present and had spoken at the last meeting of the plan.

There were 68 present at the meeting. Refreshments were served by the local department after the meeting.

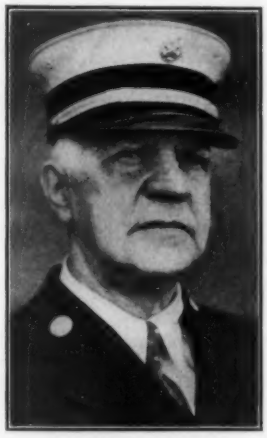
The next meeting is to be held at Fire Headquarters, White Plains, N. Y., by invitation of Chief Abbot Griffen.

Asst. Chief E. S. Kennedy Retired

E. S. Kennedy, who retired as Assistant Chief of the Jacksonville, Fla., Fire Department, was given a fried chicken supper by his associates just before his retirement. He was a member of the department for more than twenty-four years, and was forced to apply for retirement when he reached the age of sixty-five.

The dinner was attended by Chief Dowling and officials of the Fire Department and city administration.

Chief Kennedy started his fire career



Ex-Asst. Chief Kennedy

in Atlanta on December 1, 1900, and he served as driver there until October 1905. He went to Spartanburg, S. C., where he organized that city's paid department. He was Chief there until May 1, 1911, and then went to the Jacksonville Fire Department on July 1, 1911, as Assistant Foreman. Kennedy was appointed Assistant Chief on August 1, 1934.

His friends presented him with a traveling bag and a set of china.

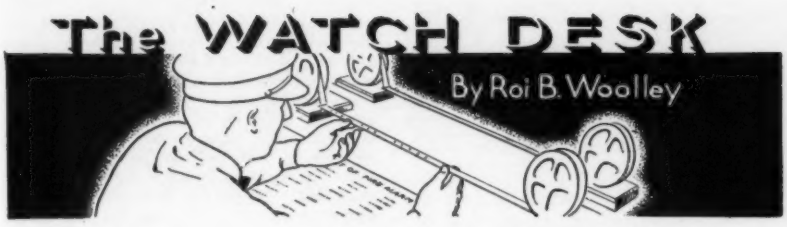
Ex-Chief of Yonkers, N. Y., Dead

Gilbert James Angevine, former Fire Chief of Yonkers, N. Y., died at his home recently. He was 73 years old.

Mr. Angevine was born in New York City. He was Chief during the volunteer days of Yonkers and served for about ten years, and was formerly active in the real estate business. He leaves a widow, son and four daughters.

William Allen Cruise, for forty-seven years a member of the Charlotte, N. C. Fire Department and the oldest paid fireman in the state, died November 23 at his home here. He was the first and only Superintendent of the Fire Alarm systems in the city.

A simple method for storing hose that simplifies the work for volunteer firemen is used by Chief W. J. Hull, Jesup, Ia. Instead of folding back the hose on fire apparatus, as is commonly done by the large departments, he placed an old hose cart reel on the back of the truck. It holds 1,050 feet of 2½-inch hose which can be unreeled in one line.



Our inquiring reporter overhauls the firemanic news of the day.

Wanted: Bucket of Water, Calls F. D.

This one comes from Chief S. F. Garber, City of Columbia City (Ind.). He says he was sitting at home when phone rang, party informing him that his (the party's) house was on fire, but, due to fact that said party thought fire could be doused with bucket of water, he didn't want to turn in alarm and would the Chief just run over with the bucket of H_2O. Chief asked citizen if he was sure a bucket of water would douse fire and if so, why he didn't use that amount of water himself! Citizen replied he didn't know where fire was. So chief went right over—but took his F. D. with him. Sezze, "we put the fire out with a bucket of water, all right, but we needed ladders to get at it."

Month's "Tall Story"

Larry Donovan, demon "news digger" of Boston Globe, shoots us this: "Lewis P. Beaumont, Wrenham (Mass.) was driving his auto when he noticed smoke issuing from engine. Lifted up hood, found engine ablaze. Fast work and sand extinguished fire. Peering at engine he was amazed to find two young rats on manifold, one alive, one burned. He threw them out and in doing so discovered cause of fire. Seems that while his auto was standing near a mill in Shepardville, a mother rat had taken some silk waste from the mill, carried it up into car to make warm nest for her progeny. Waste became ignited, causing all the fuss and two casualties.

Chief Sees "Red" When He Can't See Red Fire Truck

Chief Daniel Atwood, Pelham (N. H.) saw red when he appeared at town fire house one morning to find new combination H. & L. Truck had been stolen during night. Soon after he was advised by Chief of Police of Hampton Falls (N. H.) that truck had been found there, evidently abandoned when gas supply failed. Reported that two men forced entrance of unattended fire house, stole truck—but for what purpose no one knows.

Echoes of Fire Prevention Week

Village of Nyack (N. Y.) has live Fire Prevention Department. During broadcast of world's series game, Fire Inspector William Paul Babcock, rigged up microphone on Fire Patrol Truck, located it on busy street near radio shop whence baseball broadcast emanated. His "broadcast" got big hand—except in case of one young woman, working in office nearby, who after hearing for "914th" time the helpful statement that "Fire Prevention Week was at hand" waxed exceeding wrathy. She grabbed telephone, called a fellow-sufferer in a nearby law office. Sezshe in matter-of-fact tones: "This is Fire Prevention Week" and hung up. Soon a Western Union boy dashed in—handed her telegram. It told her "This is Fire Prevention Week." Her voice had been recognized. To get the "eternally feminine last word" she grabbed the phone again, called back her friend: "The hell you say" sezshe—and again hung up.

Takes Tip from Europe!

Evidently adapting system of certain European countries, Council of Dormont (Pa.), suburb of Pittsburgh, is reported to have passed ordinance ruling that expense involved in extinguishing fires will be charged to person or persons responsible for blazes. Each fire will be considered by Fire and Water Committee of Council, which will decide whether blaze was result of negligence. If committee finds it was, cost of extinguishing fire must be paid by careless one. Dormont has pop. of 13,000 and up-to-date F. D. We listen for repercussions to this ruling!

Freak Fire!

Static electricity jumped through body of Ralph Bond, employee of Lake Waban Laundry, on campus of Wellesley College (Wellesley, Mass.) ignited bottle of naptha he held in his hand set fire to laundry. Friction from drying machine generated electricity, 'tis said. Bond's body took up the charge. Hand and arm burned. Damage $500, but much gasoline and naptha escaped flames.

Fire "Tuckers Out" Negro

Birmingham (Ala.) fire fighters were steamed up and Jesse Conroy, negro, all tuckered out recently from fire fighting and foot racing. Jesse's bed caught fire. He ran to alarm box, "pulled de jigger" and raced back to fight fire. Firemen came, chalked up another "false alarm," returned to quarters. Inside house Jesse waged losing battle. Again he ran to box, pulled "jigger" and returned. Fire gained — blaze-beaters grew madder. Four minutes later he raced again to box, yanked "de jigger"—flat-footed it back to fire. Fireman fit to be tied. Then Jesse had to quit the fight. Three minutes later he staggered to "de jigger" and flopped down on curb, "plumb tuckered out." Fireman came, found fire, killed it—felt like doing same for Jesse.

Do You Know—

That twenty-five year fire "buff" President Roosevelt "just missed" another fire? Roof fire on Cottage of Warm Spring Foundation was fought without him. He didn't hear alarm. . . . William Williams is America's No. 1 collector of fire badges. Said to have nearly 3,000. He's a newspaper "butcher" by trade. . . . The Santa Fe's Diesel train, making speed run from Chicago to Los Angles, burst into flames, destroying first section of engine, near Gallup (N. M.). Fire being investigated. . . . Dr. Branower, of Mt. Sinai Hospital (N. Y. C.), exhibited new small, portable "Pulmotor" at 14th Annual Convention International Association of Police and Fire Surgeons; Dr. Archer (N. Y. F. D.) said, "The most impressive medical demonstration I have seen." . . . Princeton University banned balloons from all foot ball games because a gas filled balloon exploded during Harvard-Princeton game, painfully burning student. . . . Mrs. Mary Maloney, widow of E. R. Maloney, fireman killed in Ritz-Tower (N. Y. C.) fire Aug. 1, 1932, awarded $31,222 by jury before Justice J. A. Dunne, Supreme Court, Long Island City (N. Y.). Her husband was one of eight firemen to lose lives. Plaintiff contended hotel corporation negligent in storing large quantities of inflammable material in basement. Other suits pending. . . . Supreme Court Justice I. Wasservogel approved report of Referee P. J. Dunn, who found that former officers of the exempt firemen's benevolent fund (N. Y. C.) had "mismanaged" fund and failed to account adequately for almost $1,500,000 in expenditures from 1920 to 1930. . . . At session of National Society for Prevention of Blindness more curbs were asked on fireworks sale. Claimed that 30 deaths and 7,738 injuries last July 4 were needless sacrifices. . . . Barred windows barred firemen of Wyckoff, Paterson, Fair Lawn, Ridgewood and Prospect Park (N. J.) from completing rescue work when the Christian Sanatorium, Wyckoff, burned with death of two patients. Thirty-eight were heroically saved despite handicaps. . . . Four boys tinkered with old stove, caused fire which caused their death in West Orange (N. J.). . . . A gas blast ignited frame apartment house in Fort Worth (Tex.), causing death of six persons, injury to eleven others. . . . New Jersey received other tragic publicity in papers of month when there was recorded the death of Paul Collins, Paterson, whose clothes caught fire from oil lamp, and Salvin Span and wife, Anne, who were suffocated in bed from cellar fire in home in Highlands. . . . Other regrettable fatalities reported are: Mrs. Alfred Harris and two children burned to death in two-family dwelling fire, Glenns Falls (N. Y.) . . . Three members Jacobson family, Vermillion (S. D.), Mr. and Mrs. and adoped son, Walter, burned to death in farm home; fire due to overheated stove. . . . Fifty-six men trapped by fire in mine in Edmonton (Alta.) narrowly escaped death as fire swept hoist house.

WHAT DO YOU KNOW?

The Editor of "The Watch Desk" welcomes contributions from readers of FIRE ENGINEERING that briefly give facts about interesting, odd things that have to do with fires, fire-fighting, etc. Address "Editor, Watch Desk."

WHAT'S BURNING

THE FOLLOWING LIST includes fires of $50,000 loss and over in the United States and Canada, for the month of December, 1935. These figures, compiled from the telegraphic reports, are based on estimates made at the time, and are subject to later investigations and consequent revision. Taken as a whole, however, they are an approximately correct view of the losses incurred. The figures represent loss in thousands of dollars.

Month Ending December 31	Loss in Thousands of Dollars
Pittston, Pa.—Bentley Silk Mill destroyed	80
Lorain, Ohio—Whse. of Loraine Produce Co., destroyed	50
Anderson, S. C.—Bldg. occupied by G. F. Tolly & Son, Inc.	125
Bradford, Ark.—Bradford High school destroyed	50
Detroit, Mich.—Residence of Thos. T. Roberts, Gross Pointe Park	50
San Jose, Cal.—Two Bassett Street warehouses destroyed	170
Appalachia, Va.—Whse. of Virginia Wholesale Co., destroyed	325
Minneapolis, Minn.—Marquetta elevator damaged	60
St. Paul, Minn.—Section of Cleveland Junior High School	125
Roberval, Que.—Business and apartment property	50
Fairfield, Iowa—Bldg. occupied by Spurgeon Mercantile Co.	65
Seabright, N. J.—Summer home of Ross M. Clayton destroyed	80
Sutton, Neb.—Municipal Light plant damaged	50
Sandusky, Ohio—Graefe building damaged	50
Halifax, N. S.—Belvedere apartment building destroyed	50
Vincennes, Ind.—J. C. Penny Co., store damaged	125
Mt. Pleasant, N. Y.—Indoor riding track on J. A. Hartford estate	150
Uniontown, Pa.—Plant of Goldberg Iron & Metal Co., destroyed	70
Huntington, W. Va.—Johnson Memorial M. E. Church damaged	80
Emmetsburg, Iowa—Opera house block destroyed	80
High Point, N. C.—Bldg. occupied by High Point Furniture Co.	50
Cleveland, Ohio—Warehouse owned by Valuation Service Co.	300
Houston, Tex.—Houston Armature Works destroyed	50
Decatur, Ill.—Decatur Hotel destroyed	50
Arcola, N. J.—The Campus Night Club destroyed	80
Cardwell, Mo.—Brewer drug store, adj. property	50
Washington, D. C.—Federal postoffice bldg. damaged	50
Drumheller, Alta.—Universal garage and Waldorf Hotel, damaged	50
Holyoke, Mass.—Bldg. occupied by Mohican Market, adj. property	50
New Brunswick, N. J.—Store of Strong Hardware Co., damaged	50
Prescott, Wis.—Prescott grade school destroyed	50
Springfield, Vt.—Property of E. R. Wiggins Co., at Seaver Brook	70
Ellensburg, Wash.—Palace Hotel and adj. property damaged	50
New York City, N. Y.—Factory of Horowitz & Margareten	60
Forrest City, Ark.—Yoffie department store and adj. property	80
Morehouse, Mo.—Mill of Himmelberger-Harrison Mfg. Co.	300
Chester, Pa.—Bldg. occupied by Galey Hardware Co.	50
Syracuse, N. Y.—Eckel Theatre destroyed	80
Springfield, Mass.—King building damaged	50
Birmingham, Ala.—Dormitory of Birmingham Southern College	80
Charlottsville, Ind.—Charlottsville High School destroyed	125
Port Bryon, N. Y.—Port Bryon High School destroyed	80
Springfield, Ill.—Moonlight Gardens Club, 7 mi. southeast	50
Darien, Conn.—Dwellings of Wendell Colton, destroyed	70
South Philadelphia, Pa.—Plant of Wilson-Martin Co. damaged	50
Hot Springs, Ark.—Princess Theatre destroyed	125
Scottsbluff, Neb.—Property of Platte Valley Packing Co.	50
Norfolk, Va.—Norfolk County Ferries terminal damaged	50
Oskaloosa, Iowa—Blakeslee drug store and adj. property	80
Scotia, Cal.—Peeling plant of Pacific Lumber Co., destroyed	80
Philadelphia, Pa.—Bethlehem Baptist Church destroyed	70
Elmont, N. Y.—Paradise Duck Inn destroyed	50
Webster City, Iowa—Business property on South Seneca St.	50
Paducah, Ky.—Paducah Hosiery Mill damaged	50
Salkum, Wash.—Property of Chehalis Mill Co.	80

Gases and Chemicals

(*Continued from page* 14)

more or less impure and uncertain substance. The oxygen in it is liberated in the presence of certain materials such as cobalt and nickel. Calcium chlorate is also present in bleaching powder, and is a further source of oxygen. Heat encourages the evolution of the oxygen, and drums or cans of this material should be kept cool and out of the sunlight.

This material gives off chlorine gas when heated or brought in contact with acids. It also gives off small amounts of chlorine when exposed to the atmosphere. For this reason bleaching powder is apt to cause considerable discomfort or inconvenience to men operating at establishments where it is found in quantity.

Borneol: This is a white, translucent solid having a peculiar peppery odor and burning taste. It is shipped in barrels, kegs, boxes and tins, and is soluable in alcohol and ether. Its hazard is similar to camphor. It should be stored in well ventilated compartments or buildings. It is readily inflammable, the solids vaporizing under the influence of heat, the vapor being inflammable. It is less volatile than ordinary camphor, but its hazard as a whole is very similar.

Bromine: A very dark reddish brown liquid emitting irritating, poisonous, brownish fumes. It is soluble in water, alcohol, ether and solutions of potassium bromide. It is used in metallurgy, in the manufacture of bromide and the photographic industry, and also as a disinfectant and bactericide. It is shipped in glass bottles and earthenware jugs. The bottles should be surrounded by incombustible packing. It produces oxidizing effects, resulting in heating, and may cause fire when in contact with organic materials.

So far as the life hazard is concerned, it is highly corrosive, and at ordinary temperatures gives off poisonous, suffocating vapors.

It should be isolated in storage, and containers safeguarded against mechanical injury.

Bronze Dust: Bronze dust acts somewhat similar to aluminum dust. When aluminum dust is present, it forms flammable and explosive mixtures with air. Bronze dust, where it is not mixed with aluminum dust, is ordinarily not considered dangerous.

Calcium Carbide: Calcium carbide is a chemical formed by heating of coal and lime-rock in an electric furnace. It has a gravish appearance and may be furnished in cake form or in granular form. It is usually shipped in iron drums and tin cans. Upon contact with water or moisture it gives off acetylene gas, which has a wide explosive range and which creates a powerful explosion when mixed with air in proper proportions and ignited. The gas itself presents a serious life hazard under fire conditions. Where possible at fires, streams should be kept away from calcium carbide in open containers. However, calcium carbide is rarely stored in open containers, but instead in closed metal cans or drums, and for this reason the hazard is reduced considerably.

(*To be continued*)

Mid-Hudson Group Meets in Poughkeepsie, N. Y.

The Mid-Hudson Harlem Valley Fire Chiefs Association held its regular December meeting at Woodcliff Inn, Poughkeepsie, N. Y., under the auspices of the Fairview Fire Department, on December 7, about 60 members and guests being present. The following officers were elected for 1936:

President—Chief John D. Morehouse, Brewster.

First Vice-President—Chief Richard M. Berger, Beacon.

Second Vice-President—Chief Junia F. Dykeman, Patterson.

Third Vice-President—Chief R. H. Whitford, Wassaic.

Secretary—Chief Henry F. Drake, Clinton Corners.

Treasurer—Chief Harry A. Klein, Hope Farm.

Directors until 1937—Chief James N. Dunn, Millbrook, and Chief Myron L. Kilmer, Fairview F D, Poughkeepsie.

Chief Chambers of Yonkers gave a very interesting talk on his 35 years as a fireman and also in relation to his recent trip through Europe and the methods used in London in relation to fire fighting.

The next meeting will be held at Millerton on the first Saturday in March.

Fire Destroys $4,000,000 Stock of Wool

Every available fireman in the city of Sydney, Australia, was called to fight a fire which broke out in the wool store of Golsbrough Mort & Co., Ltd., and damaged property valued at $4,000,000. It was considered the worst fire that the city has had for fourteen years.

An automatic alarm sent in the signal at 7:15 a.m. When the first company had arrived, fire had reached the upper part of the seven-story building. Partitions and floors which were saturated by grease of many years' accumulation, and vertical chutes, which served as flues, helped to spread the fire rapidly.

Five firemen, including two officers, were almost trapped when flames cut off their retreat. A ladder was finally passed up to them, and they reached safety.

During the height of the fire, one of the walls collapsed. Firemen working on the ground, and several photographers, just managed to escape in time. Particles of burning wool were carried a considerable distance.

Five firemen and four civilians were injured, but none seriously. Fifteen

Republic FIRE HOSE... ALWAYS READY FOR USE

★ Year after year these five grades of Republic Fire Hose maintain their reputation as long-lasting, dependable weapons for fire fighting.

They are exceptionally strong and flexible—easy to handle, readily coiled and compactly stored. Their construction practically eliminates stretch or warpage in use. Jackets are designed to resist high pressure and hard wear, and give greatest protection to the tube. Tubes have a smooth interior surface and are built up with multiple plies of a scientific rubber compound of remarkable aging qualities to assure long life and freedom from leakage.

Made with single or double jackets, wax treated if desired. Republic also manufactures Fire Engine Suction Hose, Chemical Hose, Street Washing Hose and Rubber Covered Fire Hose. Ask for descriptive literature.

THE REPUBLIC RUBBER CO.
YOUNGSTOWN, OHIO

PORTABLE FLOODLIGHT that any budget can carry

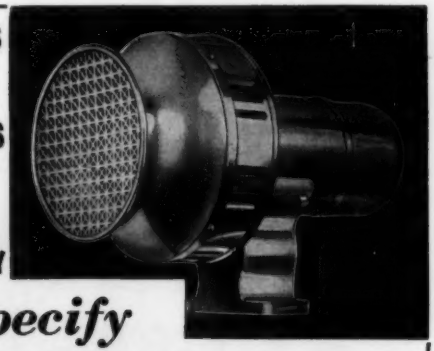
Here's floodlighting you can afford to have and can't afford to be without. The new 1250-watt Homelite floodlighting plant provides the brilliant light you need for speeding work, preventing accidents and making rescues, *at a cost low enough to fit your budget.*

The Homelite gives you floodlight wherever you want it. One man can carry it anywhere — it weighs only 89 pounds *complete with built-in gasoline engine.* It is dependable as daylight—starts instantly in any weather. It operates several lamps continuously and automatically—needs no attention after starting. Complete unit is dustproof and waterproof. Gasoline engine won't flood, freeze or overheat.

More Homelites are fighting night fires than all other makes combined. Send for new bulletin.

HOMELITE Corp.
901 RIVERDALE AVE. PORT CHESTER, N. Y., U. S. A.

COASTS 3 MINUTES THAT SAVES BATTERY



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THE FEDERAL C-5

COASTER SIREN

Because the FEDERAL C-5 COASTER SIREN is the loudest, longest coasting, most economical siren to operate, we urge you to *specify* it on all new apparatus.

Don't accept low-priced substitutes.

It means greater safety, faster runs. It is dependable, backed by over 20 years' experience in the production of only the finest sirens. Try the FEDERAL C-5 COASTER for 30 days, without obligation. Just write us, today.

THE FEDERAL ELECTRIC COMPANY
8702 South State St., Chicago

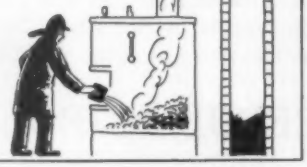
SOOT BLAST
Puts out chimney fires

A vital **NECESSITY**
IN EVERY DEPARTMENT
NO ZINC - NON-EXPLOSIVE

Saves climbing icy roofs; saves chemical damage; saves injury to firemen; saves time and money; cuts fire loss by putting out bad chimney fires in less than 6 minutes.

Now being used by U. S. Government
Price $4.50 per case of 12 packages
See your LOCAL DEALER or write to
The STEBIS COMPANY
MINNEAPOLIS, MINN.

SOOT-BLAST
Also comes put up in 100 lb. bags at $12.50 per bag.



AFTER all, a good badge is a sensible investment. Not everyone can wear a fireman's emblem of service. You men who have devoted your lives to saving life and property should be proud of your badge.
You will be if you wear a BRAXMAR BADGE. Over fifty-five years of experience goes into every badge you buy.
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C. G. BRAXMAR CO., 242 West 55th Street, New York

BRAXMAR BADGES
Standard for Over Fifty Years

Are You Ready for Promotion?

QUESTIONS AND ANSWERS FOR BATTALION AND DEPUTY CHIEF

A 210 page book, fully illustrated, by Geo. J. Kuss, Former Deputy Chief, New York Fire Department, and Fred. Shepperd, Managing Editor of FIRE ENGINEERING.

A valuable book, not only for candidates for examination for Battalion and Deputy Chief, but for every member of the department. The only book published which gives detailed methods of operating at large fires and the reasons for each move.

The following are a few of the important topics covered:

Detailed description of the proper procedure in fighting fires: 1. Size-up; 2. Calling of help; 3. Saving of life; 4. Covering exposures; 5. Extinguishing fire; 6. Overhauling. How to test motor fire apparatus. How the following types of fires should be fought: Large department stores, large hotels and rooming houses, large area residential fires, combination stores and apartments, motion picture film exchanges, tall office buildings, wholesale grocery stores and warehouses, group building fires, theatres, schools, factories, etc., and considerable other data.

Here's a book that actually helps any officer or fireman ambitious enough to want a bigger and better job. Just look over the topics it covers and if you don't feel sure of just how to handle every situation, the proper thing to do—and do now—is to

Use the Coupon!

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engines and 230 firemen were at work on the fire.

The building contained 30,000 bales of unscoured wool. The store and contents were fully covered by insurance.

Bridge Fire Spreads to Nearby Mills

Woonsocket, R. I., is minus its famous "Bandwagon" bridge as the result of a fire which started on the bridge and which spread to a warehouse and nearby mills, causing $75,000 damage. The bridge was erected nearly a century ago.

When firemen arrived, the heavy timber uprights and crosspieces, all oil soaked by years of constant use, were burning rapidly. Although the wind was blowing in the opposite direction, the heat was so intense that fire started in the plant of the Crown Piece Dye Works. Strong winds fanned the flames along the entire length of the bridge and ignited a building across the river. Fire broke out in the storage building of the Bouvier Construction Company, and the two-story brick building of the Verhulst Combing Company. Windows of the later plant were blown out by a backdraft.

Nearby were two gasoline tanks of 20,000-gallon capacity, but the vent was opened to prevent explosions. A truck was sent with a load of foam powders in case tanks of the Texas Oil Company burst. Fifteen hose lines were used in extinguishing the fires.

During the progress of the fire, the bridge collapsed into the river.

Bridge Ten Minutes Before It Fell Into the River

A Junior Department has been proposed for Little Rock, Ark., by the local Rotary Club, to include boys between the ages of twelve and fifteen.

As part of the ceremonies for the dedication of its new Pirsch apparatus, a souvenir booklet was issued by the volunteer department of New Market, N. J. It was dedicated to John Kenlon, formerly Chief, New York Fire Department.

Texas Exposition Guards Against Fire

Fire protection on the grounds of the $15,000,000 Texas Centennial Exposition in Dallas, June 6 to November 29, will be a closely knit system equal to fire fighting means provided congested districts in metropolitan areas.

Fifty automatic signal boxes will be scattered over the 200-acre Exposition Park. The signal system, including seven master boxes in close proximity of the largest exhibit buildings, cost $8,000.

A two-story fire department headquarters costing $30,000, fully equipped, is centrally located on the grounds. It will also house the Exposition police.

Alarms also will be flashed to downtown stations, bringing the entire Dallas department into instant action. A branch station of the city department is located just outside the main entrance to the Exposition.

Fire dangers have been greatly lessened by the policy of requiring construction to be of non-inflammable material and the exercise of draft control. Exhibitors are prohibited from using inflammable material in their decorative designs. Additional protection is afforded by guards and sentinels making the rounds at all hours.

Fire Alarm Group Meets in Boston

A large attendance and interesting papers featured the two-day meeting of the New England Municipal Signal Association which was held in the Hotel Kenmore, Boston, Mass., on December 18 and 19.

Among the speakers were W. M. Runyon, sales engineer of the Crouse-Hinds Company, who discussed "Facts About Grounding to Cover Life and Fire Risks"; J. H. McMullen, of the Electro Acoustic Products Company, who spoke on "Sound Application in Conjunction with Fire Alarm and Police Signaling Systems"; and William J. McKenna, who explained "Advantages and Hazards Relating to Municipal Communications Organizations."

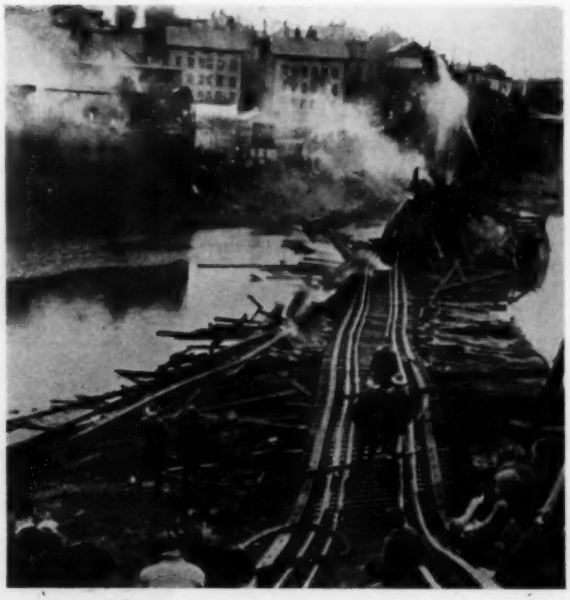
A banquet was held, followed by a round table discussion. The topics considered were: The value of the fire alarm box grounding devices as an auxiliary to the normal metallic fire alarm box circuit as dependent on the effectiveness of the ground; What method can be used by the municipal fire alarm box inspector as an addition to his present routine to determine the effectiveness of the ground contact with the least possible equipment and in the shortest possible time?

At the second day's session an address and demonstration were given by T. Cooper, Jr., engineer of transmission and protection, New England Telephone and Telegraph Company, on "Latest Achievements of the Bell Telephone Laboratories in Radio-telephone Developments." He described the world wide radio-telephone network, radio-telephone service to ocean liners at sea, and marine radio-telephone service to harbor and coastwise shipping and to fishing trawlers. Lantern slides were shown and at the end of the talk Benjamin P. Bartlett, Shore Station Maintenance Engineer, demonstrated the shore to ship telephone service, establishing communication with the U. S. Coast Guard Cutter "Faunce" 100 miles at sea.

President A. L. Pierce, of Wallingford, Conn., presided, assisted by Secretary Raymond J. White, of Brockton, Mass.

Announcement was made that the next meeting will be held in Providence, R. I., at the Biltmore Hotel on March 18 and 19 under direction of Alfred C. Ames, Superintendent of Fire Alarms, Providence, R. I.

HARRY BELKNAP.



After the Collapse of the Bridge, and the Warehouse at the Left Had Been Destroyed

Chief Louis Almgren Retires

Louis Almgren, Chief of the San Diego, Cal., Fire Department for the past twenty-six years, resigned, following a brief period at the Mills Memorial Hospital, where he entered for heart

Ex-Chief Louis Almgren

treatment. He had planned to retire a year previous, but was persuaded to postpone such action.

Chief Almgren entered the department in 1902 and resigned in June, 1907. Two years later he was appointed Chief and he has held that post until his retirement.

He was given a testimonial dinner by his friends on December 20 at the U. S. Grant Hotel.

He was one of the first members of the California Athletic Commission, and has also acquired a string of race horses. He plans to devote his full time to the development of these horses for the track.

John E. Parrish, Assistant Chief, has been advanced to the head of the department, and Battalion Chief George E. Courser has been named Assistant Chief.

Good Police Work Reduces Life Hazard

Firemen in North Carolina towns have been hampered by curious crows in their fire fighting. So serious has become the situation that recently in the resort town of Brevard, the Council had to pass a drastic ordinance, directed at motorists who, at the sound of the alarm, drive their cars in the direction of the fire and created traffic jams.

In Charlotte on December 5 there was a fire in the afternoon that sent thousands of Christmas season shoppers to the scene in the very center of Charlotte's busiest business district. There was a blaze in the basement of the Charlotte Salvage Company and from the tremendous volumes of smoke it seemed the city was on fire. So successful were policemen in holding the crowds out of the way by roping off the area, that Chief Hendrix Palmer officially thanked the Police Department. The police work is credited with saving lives and preventing injuries to the thousands of shoppers.

The crowd was held back by the police while firemen got a threatening blaze under control, saving a stampede from the motion picture house next door.

The fire at the Charlotte Salvage Company's place caused a damage of about $50,000 to stocks (mostly by smoke and water) and only $3,000 to the structure.

D. G. Spencer.

Newport and Owensboro Honored

Newport and Owensboro, Ky., share state honors in the National Fire Prevention Contests for the state during 1935. Louisville has been awarded second place.

Chief Edward Miles, of the Newport Fire Department, said that this is the first time that his city has been awarded first place. During the past five years, it won second place each year with Owensboro first.

As a result of fire prevention work during the past five years, the losses were continuously reduced. For the past year, it was $59,273.

Box 52 Stages Xmas Party

The Christmas party of the Box 52 Association was held on the evening of December 18 in the Boston Chamber of Commerce Building on Federal Street, Boston, Mass.

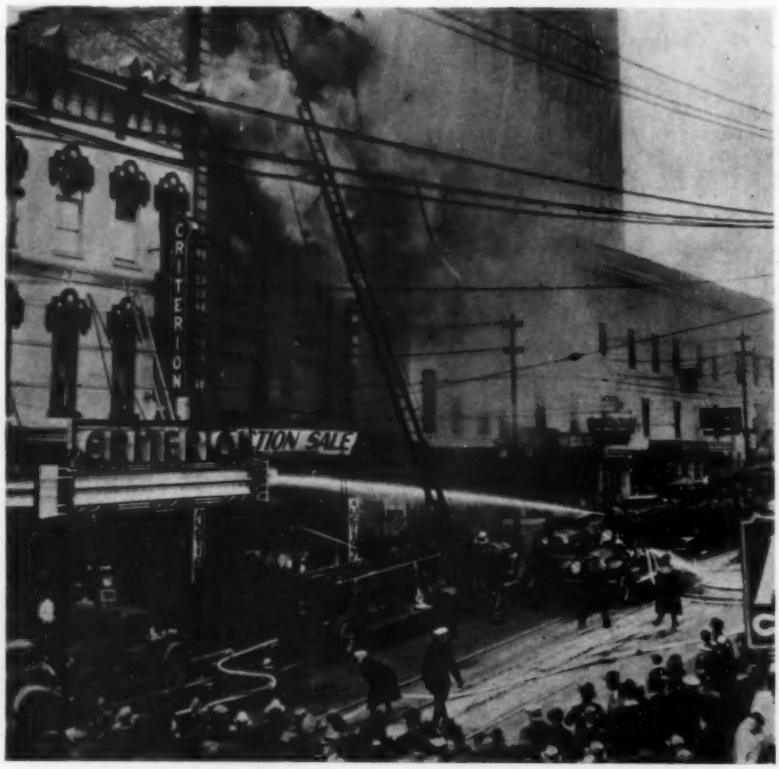
The speakers were Walter M. McLean, former Deputy Chief of the Boston Fire Department, who retired on pension recently; Thomas F. Dougherty, retired Assistant Chief of the New York Fire Department; Chief Selden R. Allen, Brookline, Mass., former President of the International Association of Fire Chiefs; and Deputy Chief William F. Quigley, Boston Fire Department.

Harry Belknap.

10 Hurt in Fire Apparatus Crash

One man, who claims that while driving, he did not hear the siren of approaching fire apparatus, was directly responsible for the crash of fire apparatus in which ten persons were injured and a building damaged.

The accident occurred at Church and Duncan Streets, San Francisco. Firemen claim that the siren and bell of the apparatus were sounded from the time of leaving the fire station, and witnesses in the vicinity of the spot where the crash occurred, said that they heard the siren of approaching apparatus. But the motorist, who testified that he was traveling at a speed of twenty miles an hour, said that he did not hear the apparatus until it was near him. He swerved aside. So did the apparatus, and the crash occurred. The heavy truck leaped the sidewalk and crashed into a cleaning shop. Christmas shoppers were pinned in the wreckage.



Shopping Crowd Held Back by Charlotte Police

CAT. NO. G-641

Used with the swivel connection on 2½" hose it can be moved into any location desired, and turned into position without turning the hose.

Demonstration given without obligation
Further details submitted upon request.

Lovell Dressel Co., Inc.
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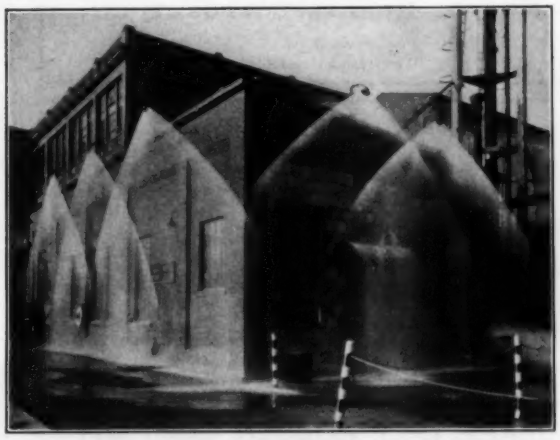
AGENCIES AVAILABLE

GILSON *All Angle* WATER CURTAIN

Spreads a sheet of water 60 feet wide by 20 feet high, which acts as a protection for men, buildings, tanks, etc. against radiant heat. Under actual test this curtain protected combustible materials against 1500° fahrenheit. Used without swivel they can be attached to permanent connections as shown below.



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FIRE DEPARTMENT SUPPLIES

Wire, write or phone us if you are in need of equipment or supplies. We handle a very complete line and will be glad to supply you any item you need. We'll be glad to quote you prices on any item.

Send for catalog.

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We want Fire Department men to represent us!

We have splendid openings in some territories where we particularly want Fire Department Men to represent us. Commissions are good—and we have a complete line of Automatics, Manual Grenades, Pump Guns, Soda-Acid and Foams in 2½ Gallon Size, Chemical Engines, Fire Sirens, and unusually good Fire Department Hose.

If you have any time on your present job, be sure to write us for Free Facts and complete information, which will be sent you without any obligation.

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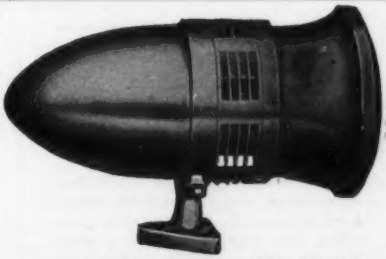

NEW STERLING STREAMLINE SIREN

STERLING FREE ROLLING JR. NO. 20

Beautiful — Powerful, distinctive tone — moderately priced — precision built and guaranteed perfect mechanically.

This siren can be furnished with Red Light Combination.

The Sterling Siren Fire Alarm Co., Inc.
56 Allen St., Rochester, N. Y.

EDDY Fire Hydrants

Are given preference by so many fire protection and water works men because they know that more than half a century of experience go into their manufacture and they embody valuable and exclusive features.

Write for the Facts

EDDY VALVE CO.
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HEWITT-GUTTA PERCHA
FIRE HOSE

A complete line, including
Wax Treated - Solid Multiple Woven
AND
Single and Double Jacket Hose

Manufactured by
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"Territories Available"

CRACKERJACK
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The hose with an unsurpassed reputation for QUALITY and SERVICE that has made it the STANDARD OF THE WEST for over 25 years.

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THE AMERICAN RUBBER MANUFACTURING CO.
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Dealers in All Parts of the Country

PERFECT is about the only word that adequately describes our double jacket hose. Uniformly woven jackets of long fibre cotton, with a perfect rubber lining made as only a 50 year old rubber firm knows how. *Write for prices.*

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SUITS
GUARANTEED PRODUCTS

Warm - Comfortable - Long-wearing
Made To Order
Material and workmanship guaranteed.
Durable special designed harness snaps for hard wear, on all coats.
Send order to—
AMERICAN RAINCOAT CO.
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THIS YEAR WILL OFFER MANY OPPORTUNITIES TO AGENTS HANDLING THE SALE OF

GOODALL FIRE HOSE

TO CITIES AND TOWNS.

Are you interested in our Agency Plan?

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WARD LA FRANCE

HIGHEST QUALITY
MOTOR
FIRE APPARATUS

Send in your Specifications for Prices

WARD LA FRANCE TRUCK CORP.
ELMIRA, N. Y.

Bi-Lateral Fire Hose

The one hose that does not require frequent replacements. Always reliable for fire service no matter how old, if the jackets are intact.
Lined with three rubber tubes.

BI-LATERAL FIRE HOSE CO.
15 Park Row, New York, N. Y.
20 N. Wacker Drive, Chicago, Ill.

Valuable Information

All the manufacturers you will find represented in our advertising pages have interesting and valuable data about their equipment which is yours for the asking. When writing, be sure to mention FIRE ENGINEERING.

Manufacturers' Announcements

H. A. Scott Made Branch Manager

H. A. Scott, salesman for the Fabric Fire Hose Company, has been advanced to Manager of the Pittsburgh office.

He is thirty-five years old. He started to work for the Ahrens-Fox Fire Company in 1922 and covered seven eastern

H. A. Scott

states as service engineer. From 1928-1934 he was with the Seagrave Corporation as salesman, working from the New Haven and New York offices. Mr. Scott joined the New York sales office of the Fabric Fire Hose Company in 1934 and covered the western part of the state.

Heavy Duty Brake Lining

A heavy duty woven and compressed brake lining has been developed by Johns-Manville, New York City. It is being offered for heavy industrial equipment.

Manhattan Rubber Issues New Catalogue

The Manhattan Rubber Manufacturing Division of Raybestos-Manhattan, Inc., has just printed the second edition of its general catalogue. Copies will be mailed to those who did not receive the first edition of this book.

Change in MSA Hose Mask Design

The Mine Safety Appliances Company, Pittsburgh, Pa., has made changes in the design of the MSA combination hose mask. The blower is now built with a double outlet for one or two-man use.

An eight-page illustrated bulletin has been published to describe the improvement in the design.

Anti-Freeze Extinguisher

An anti-freeze fire extinguisher has been placed on the market by the American-LaFrance and Foamite Industries, Inc. When the extinguisher is inverted and bumped, carbon dioxide gas is released from a steel cylinder and the liquid expelled. While this type of extinguisher has been on sale by the company for many years, the present model is their latest development in the anti-freeze design.

The rate of discharge is regulated automatically. When the pressure is high during the early part of the discharge, the outlet is small, and this increases in area as the pressure in the extinguisher decreases. The extinguisher does not freeze at temperatures as low as —40° F.

New Darley Pump for Cross Mounting

W. S. Darley & Co. announce a new Champion Centrifugal Midship Fire Pump for mounting across the chassis, under or back of seat.

The new Champion, powered by a 1936 standard Ford V-8 truck chassis, passed the 12-hour performance tests, conducted by the Engineers of the National Board of Fire Underwriters. The National Board Engineers reported "Performance satisfactory" and "Pump in perfect condition at end of test."

The Midship Champion is a new fire pump. Weighing only 375 pounds, it can be mounted on 1½-ton truck chassis without overloading.

It is available in two types, direct drive and gear drive—both off chassis propeller shaft. Each type is made in three Underwriter rated capacities, 500 gpm, 400 gpm, 300 gpm.

Two Injured in Apparatus Crash with Car

Two members of the Newcastle, Ind., Fire Department, were severely injured when the apparatus on which they were responding to a fire, was struck by an interurban car of the Indiana Railroad.

The apparatus was about one-half block from its station, and was rounding a corner in a large arc. It was unable to get back to the right side of the street in time. Its siren was sounding at the time.

A member of the apparatus crew said that the apparatus was proceeding at a speed of twelve miles an hour, in order to make the turn safely, and that it had come to a complete stop before the trolley crashed into it. The driver of the apparatus has an unusually good record. He has been driver at the station for the past fifteen years and this is his first accident.

Investigation is being made regarding the speed of the interurban car, for the speed of such units is limited to fifteen miles an hour in the residential district and eight miles an hour in the business district. The corner at which the crash occurred is considered in the business district.

Chiefs' Club Enjoys Holiday Party

The largest and most successful Christmas party and ladies' day ever held by the Fire Chiefs' Club of Massachusetts was featured by a turkey dinner and vaudeville entertainment in the new roof garden of the Parker House, Boston, on December 18. Each lady was presented with a handsome souvenir.

Chief Charles L. McCarthy, Worcester, President of the club, directed the proceedings. A Christmas tree and toy baloons added to the gaiety of the banquet. Officers and members of the New Hampshire Fire Chiefs' Club, with lady guests, attended by special invitation.

On behalf of the officers and men of the Worcester Fire Department, Chief George L. Johnson, Waltham, presented Chief McCarthy with a handsome leather toilet case. Among those attending were Ex-Assistant Chief Thomas F. Dougherty, New York, and Stephen C. Garrity, Massachusetts State Fire Marshal. HARRY BELKNAP.

Phone Delays Fire Alarm Response

Five persons were driven to the street by a two-alarm fire in an apartment house fire at Brookline, Mass. The fire was discovered by a boy who ran and notified the janitor. He in turn tried to telephone the Fire Department. He was so long in getting his connection that he was almost trapped by the flames and he had difficulty in reaching safety through the thick smoke.

Deputy Chief Spencer Honored by Dinner

John Spencer, Deputy Chief of the New York Fire Department and commanding fire officer of Staten Island, was honored at a testimonial dinner on December 5 at St. George, to commemorate his fortieth year of active service.

He received a scroll commemorating his long years of service, from the President of the Columbia Association of the department. A motion picture and projector were presented by Vincent J. Kane, President of the U.F.A., and the volunteer firemen of the borough presented him with flowers.

Chief Spencer was appointed a fireman on December 17, 1895; Lieutenant, August 1, 1904; Captain, June 12, 1907;

Deputy Chief John Spencer

Chief of Battalion, November 1, 1918; and Deputy Chief, March 4, 1932. He was awarded the Administration Medal in 1929. Chief Spencer has contributed many inventions in fire fighting appliances, and he has conducted a relentless war against those who send in false fire alarms.

FALSE ALARMS

THEY BOTH WENT!

A Chief's office was separated from the part reserved for the public by a railing and a small swinging door. Behind this partition sat the Chief, and a young boy named Ellis, who was his secretary.

A Chinaman appeared at the railing, hat in hand. The Chief looked up, returned his gaze on his work and muttered to his assistant, "You go, Ell."

The visitor took this as a personal insult. He crunched his hat and shouted:

"Yo go hell yourself."

You can't go ahead while you're kicking any more than a mule can.

START OF TROUBLE

All the volunteer departments of the southern part of the county had banded into an association to promote friendliness and cooperation. Frequently during the winter, smokers or dances were held in various towns. This time is was a dance, and as one couple were on their way to Firemen's Hall, an accident occurred.

The victim was taken to Court where the Judge inquired:

"How did the accident happen?"

The driver answered, "Why, I dimmed my lights and was hugging a curve."

The Judge dryly remarked, "Yes, that's how most accidents happen."

Always do right. That will gratify some people and astonish the rest.

CASE OF BARTER

A non-too-bright fireman was hauled up on the carpet to answer a charge that he had taken some merchandise from a store while fighting a fire. The Chief was indignant.

"What has become of your ethics?" he shouted.

"Sir, I traded it long ago for a Hudson."

BETTER GRADES

Here is a choice Christmas story. It concerns a rather dapper appearing Lieutenant, who, while still in uniform, went shopping.

"I want a pair of stockings," he said to the clerk.

"For your wife, or shall I show you something better?

WRONG CURVES

His anatomy was perfect, and he passed the physical examination required of all candidates. But his eyesight was very poor. The examining doctor pointed to a chart on the wall and asked the applicant to identify the things he saw.

"What is in the large circle in the center?"

The man peered at the object and answered, "That is the figure 18."

"Wrong!" said the doctor. "That is a picture of Mae West talking to Katherine Hepburn."

MORE FAVORED

It was after the service, and the minister went down the aisle to meet his parishioners.

"Ah," he said to a pleasant young man, "how good it is to see you again. And is this your most charming wife?"

The young man blushed slightly and said, "This is my only wife."

CHANGE OF OFFICE

During the past political campaign, a member for the state assembly called on a town officer.

"So you're the Chief of Police of this fine little town," he said. "Glad to know you. I wonder if I could arrange to meet the Fire Chief also."

"Sure," said the other. "Just wait until I change hats."

—Drawing by "Art" Espey

"He's the poet laureate of the company. Every New Years he stays up a purpose to recite 'The Bells.'"

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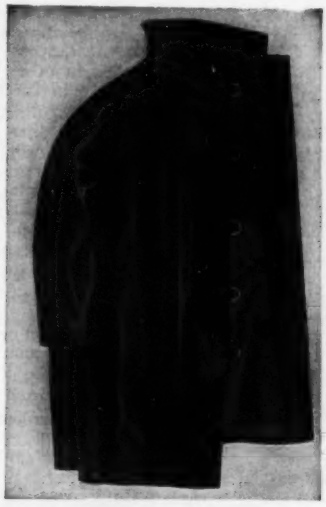

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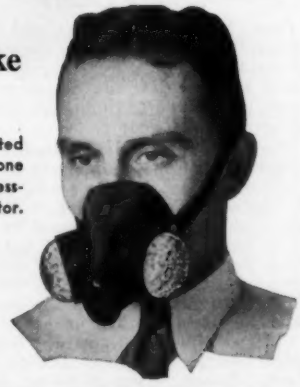

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CONVENTION DATES

Jan. 15—FIRE CHIEFS' EMERGENCY PLAN. Regular Meeting, Fire Headquarters, Mamaroneck Ave., White Plains, N. Y. Secretary, Walter M. Dakins, P. O. Box 341, Port Chester, N. Y.

March 7—MID HUDSON HARLEM VALLEY FIRE CHIEFS' ASSOCIATION. Regular Meeting, Millerton, N. Y. Secretary, Chief Henry F. Drake, Clinton Corners, N. Y.

June—SOUTH CAROLINA STATE FIREMEN'S ASSOCIATION. 31st Annual Convention, Camden, S. C., exact date to be decided later. Secretary-Treasurer, John H. Wohlers, Chief, Fire Department, Charleston, S. C.

June 9-12—ANNUAL FIRE COLLEGE, ILLINOIS FIREMEN'S ASSOCIATION. 12th Annual Fire College, University of Illinois. Director, L. H. Provine; Secretary. Assistant Chief Roy W. Alsip, Fire Department, Champaign, Ill.

June 17—NORTHWESTERN OHIO FIREMEN'S ASSOCIATION. 63rd Annual Convention, Bowling Green, Ohio. Secretary, J. W. Gardner, Ashland, Ohio.

June 24-26—MARYLAND STATE FIREMEN'S ASSOCIATION. 44th Annual Convention, Hagerstown, Md. Secretary, George R. Lindsay, Hagerstown, Md.

July 7-10—PROVINCE OF QUEBEC POLICE AND FIRE CHIEFS' ASSOCIATION. 4th Annual Convention, Grand'Mere, Que., Can. Secretary-Treasurer, Chief Robert Harrington, Fire Dept., McColl-Frontenac Oil Co., Ltd., Windsor Hotel, Montreal.

Aug.—NATIONAL MUNICIPAL SIGNAL ASSOCIATION. 41st Annual Convention, New York City. (Exact date to be announced later.) Secretary, W. H. Harth, Columbia, S. C.

Aug.—UTAH STATE FIREMEN'S ASSOCIATION. 36th Annual Convention, Ogden, Utah. (Exact date to be decided later.) Secretary, John J. Creedon, P. O. Box 25, Bingham Canyon, Utah.

Aug. 17-20—CALIFORNIA STATE FIREMEN'S ASSOCIATION. 14th Annual Convention, Lodi, Cal. Secretary-Treasurer, H. E. Strasses, 1171 Tenth Ave., San Diego, Cal.

Oct. 13-15—ILLINOIS FIREMEN'S ASSOCIATION. 49th Annual Convention, Pekin, Ill. Secretary, Assistant Chief Roy W. Alsip, Fire Department, Champaign, Il.

Two Meetings of Fairfield County Chiefs

Over 100 chiefs, officers and guests attended the November meeting of the Fairfield County Fire Chiefs' Emergency Plan held at the Saugatuck firehouse in Westport, Conn., on Wednesday evening, November 20.

The question of moving the fire alarm system from fire headquarters to police headquarters in Westport was the major business of the evening. The suggested change was questioned by a letter in the question box and Selectman Alois Forger, who previously had welcomed the visiting firemen to the town of Westport, explained to the assembly what the selectmen had in mind.

Chief John McNamara, Danbury, Chief George Brencher, Darien, Chief Harry Askew, Turn-of-River, Retired Chief Peter Beckerle, Danbury, Chief Frank Gisborne, Old Greenwich, Assistant Chief Scully, Westport, Assistant Chief Stuart Potter, Old Greenwich, Chief Isaac Hubbard, Greenwich, Commissioner Stack, Danbury and Chief George Clark, Noroton Heights discussed the matter at length and a motion by Retired Chief Beckerle was unanimously passed disapproving of the change and advising the Westport Selectman to keep their fire alarm system at fire headquarters. The Chiefs cited many instances where confusion has developed in other towns, where this system was in force.

Messrs. Johnson and Hetzel, of the Shur-Stop Fire Appliance Company, presented motion pictures of the origin of various fires and showed how their companies extinguished these fires.

Leon Meaney also showed new vapor nozzle which is one of the latest developments in the fire equipment line.

Speakers at the meeting included selectman Alois Forger; Chief Francis Bieling of the Westport Fire Department and Henry Linxwieler, President of the Saugatuck Fire Department.

Following the meeting the firemen were entertained at the Green Door.

The December meeting of the Plan was held at fire headquarters, Cos Cob, Conn., on Wednesday evening, December 18. The principal speaker of the evening was T. Alfred Fleming, Supervisor of the Conservation Department of the National Board of Fire Underwriters, whose topic was "Arson." Mr. Fleming informed the officers present on the proper procedure to take after they were suspicious that a fire had been set. He said that in order to prosecute someone for arson, three important details must be furnished. 1. Describing the building; 2. Corpus Delicti and 3. A motive for arson. He cited instances of his experiences in trailing and bringing guilty persons to justice.

The meeting was presided over by Chief Frank R. Gisborne, of Old Greenwich, President of the Plan. Talks in behalf of the town were made by the three Selectman and members of the Fire Commission, Oscar Tuthill, Gene McLaughlin and Ex-Chief James N. Sullivan. Chief Raymond Chandler, retiring President George Dean and President Elect James Anderson, of the Cos Cob Fire Department, gave short talks of welcome.

It was voted to send flowers in memory of the late Chief Arthur Smith, of Georgetown, a member of the Plan, who died the day before the meeting. The Ways and Means Committee was voted power to proceed to draft a new questionnaire regarding the equipment in the county and ascertain the threads of the departments in the county.

The following questions were in the question box and were discussed: 1. "Are any of the departments in the Plan doing anything about the $3.00 tax for State Pensions? Should the towns pay the tax?" Question No. 2. "Do any departments in this county require a physical examination for new members and do they have periodic examinations for men after joining?" No. 3. "What care is used in cold weather to keep pump and pipes from freezing?" The next meeting will be held on January 22.

Scully Honored by Soda and Acid Club

John J. Scully, President of the American Fire Equipment Company, Broad Street, Boston, was tendered a real surprise party on December 18, when a number of Chiefs, headed by Chief George L. Johnson, of Waltham, presented him with a large framed portrait of himself in behalf of the "Soda and Acid Club," an informal group of Chiefs who often meet at the offices of the fire equipment company.

HARRY BELKNAP.

Mother of Chief McAuliffe Dead

Katherine Wegener McAuliffe, seventy-three years old, died of a heart ailment on December 23. She was the wife of retired Deputy Chief Jeremiah McAuliffe, of the Chicago Fire Department, and the mother of Frank C. McAuliffe, Chief of the Chicago Fire Insurance Patrols, and Jeremiah McAuliffe, Chief of the 6th Battalion, Chicago Fire Department. She was also the grandmother of Fireman Jeremiah McAuliffe, on Squad No. 1 of the Chicago Fire Department.

Department and Other Reports Received

Dallas, Tex.—Laws and Ordinances Governing Fire Prevention and Safety Regulations Pertaining to Fire for the city of Dallas, Tex.; eighty-seven pages.

Colorado State Firemen's Association—Proceedings of the fifth annual fire college and nineteenth annual convention and tournament of the Colorado State Firemen's Association held at Loveland, Col.; illustrated, sixty-four pages.

Wilmington, Del.—Fire Prevention Ordinance for the city of Wilmington, Del. Contains regulations governing pyroxylin plastic, motion picture film, inflammable liquids, oil burning equipment, paints and lacquers, etc.; forty-three pages.

Brockton, Mass.—Annual report of the Chief of Fire Department and Superintendent of Fire Alarm, Brockton, Mass.; ninety-four pages.

Fitchburg, Mass.—Annual report of the Fire Department, Fitchburg, Mass.; sixteen pages.

Massachusetts State Firemen's Association—Report of the fifty-fifth convention of the Massachusetts State Firemen's Association held at Holyoke, Mass.; 257 pages plus advertising section.

Oregon, Mass.—Annual report of the State Fire Marshal of Oregon; 115 pages.

Utah State Firemen's Association—Year book of the Utah State Firemen's Association issued for twenty-eighth annual convention, Heber City; twenty-two pages, illustrated.

Shanghai Fire Brigade—Annual report of the fire brigade and ambulance service, Shanghai, China; twenty pages.

Denver, Col.—Annual report of the Fire Department, Denver, Col.; illustrated, fifty-one pages.

British Columbia—Thirteenth annual report of the Fire Marshal, British Columbia; twenty-two pages.

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10 Asbestos Clothing
11 Badges, Insignias, Buttons, etc.
12 Banners, Trumpets, etc.
13 Battery Jars
14 Battery Zincs for Fire Alarm Batteries
15 Bells, Fire Alarm, Municipal
16 Body Equipments
17 Boxes, Gongs, Reels, Registers, Fire Alarm
18 Brakes, Air
19 Brake Linings
20 Brooms, Fire
21 Building Materials, Fire Retardant
22 Caps, Firemen's
23 Chains, Non-Skid, Fire Apparatus
24 Chassis for Fire Apparatus
25 Chemical Engines and Tanks
26 Chimney Fire Fuses and Compounds
27 City Service Trucks
28 Coats and Suits, Firemen's Quick Hitch
29 Combination Chemical and Hose Cars
30 Cutting and Welding Equipment, Blow Torch
31 Cutting and Welding Equipment, Electric
32 Deluge Sets
33 Door Openers, Fire Station, Automatic
34 Electric Light Plants
35 Extinguishers, Calcium Chloride
36 Extinguishers, Carbon Dioxide
37 Extinguishers, Soda-Acid
38 Extinguishers, Carbon Tetrachloride
39 Extinguishers, Foam
40 Extinguishers, Powder
41 False Alarm Prevention
42 Fire Boat Nozzle Equipment
43 Fire Department Supplies, General
44 Fire Exit Devices, Door Opening
45 Fire Alarm Posts
46 Fire Escapes, Portable
47 First Aid Equipment
48 Flare Lights
49 Flashlights, Hand
50 Flood Lighting Equipment (Lamps, Cable, Reels, etc.)
51 Foam Generating Apparatus
52 Foam Liquid for Extinguishers
53 Gas Masks and Respirators
54 Gas and Smoke Helmets
55 Gas and Smoke Generators
56 Goggles, Firemen's
57 Helmets, Metal, etc.
58 Hose Bridges
59 Hose Carts, Reels and Racks
60 Hose Clamps
61 Hose, Fire
62 Hose, Chemical
63 Hose Holders
64 Hose Jackets
65 Hose Standardization Tools
66 Hydrant Draining Pumps
67 Hydrants, Fire
68 Jacks for Fire Trucks
69 Jacks, Shoring and Prying
70 Ladders, Fire
71 Lightning Arresters
72 Motorcycles, Fire Dept. Equipped
73 Nets, Life
74 Nozzles, Pipes and Miscellaneous Brass Goods
75 Packings, Pump
76 Pads, Pole Hole
77 Paints, Fire Resisting
78 Priming Ether, Motor
79 Pumping Cars, Standard
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82 Pumps, Fire Service, Stationary
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84 Record Books, Fire
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87 Rubber Clothing
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90 Shingles, Fire Retardant
91 Shirts, Firemen's Special
92 Sirens, Apparatus and Chiefs' Cars
93 Sliding Poles
94 Soda and Acid Chemicals
95 Spark Plugs, Fire Apparatus and Motorcycles
96 Squad and other Auxiliary Cars
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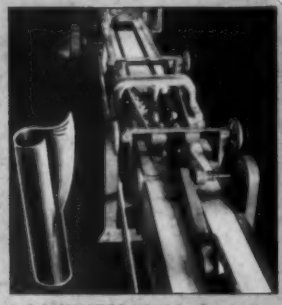

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